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COMMITTEE REPORT

Fifty-Ninth Annual Meeting
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A Study of Cultures of Monilia Isolated from Sputum*

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ALTHOUGH species of yeast-like organisms were associated with thrush as early as 1839, the relation of fungi to human disease has been given far less attention than similar phases of bacteriology. The wider interest in pathogenic bacteria has probably been aroused by their greater frequency as incitants of systemic disease. In temperate climates, few of the serious diseases of man or other animals have been shown to be due to fungi. Nevertheless, the high mortality of the systemic form of blastomycosis and the similar type of infection known as coccidoidal granuloma, occurring in the San Joaquin Valley in California, illustrates the marked pathogenicity of certain species of these organisms for man. Among plants, many of the most destructive diseases are due to fungi. The economic importance of the numerous blights, smuts, and rusts is too well known to need emphasis.

Castellani's[1] extensive investigation of mycotic infections in man, particularly in the tropics, has demonstrated their wide distribution the variety of lesions induced, and the number of species involved.

The recent attention paid to mycoses of the skin, especially of the feet, which have been found in such a large percentage of college students and others using the shower baths in clubs or gymnasiums, has stimulated interest in mycotic infections in general. The relative frequency, in Wisconsin, of pulmonary lesions due to monilia as shown

* Read before the Laboratory Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 2, 1929.

by the work of Stovall[2] raises the question of whether infections of this nature may not be more disseminated in other parts of the country than statistics indicate.

Of the large number of specimens of sputum received at our laboratory, extremely few are accompanied by requests for an examination for fungi. Most of those containing these organisms have first come to our attention in the course of the routine examinations for tubercle bacilli, and cultures are occasionally submitted for identification from other laboratories.

Strains of monilia pathogenic for white rats have been isolated from the sputum of 11 patients. The clinical histories of 2 are especially interesting. The first was a woman 51 years of age who had been acutely ill for about 6 weeks. Tuberculosis was suspected. The symptoms recorded were considerable coughing; a large amount of thick, mucilaginous sputum, almost constantly blood-streaked; very little fever; severe pain in the lower chest; some dullness; a few rales; and at times delirium. In a series of sputum specimens examined in a local laboratory, no tubercle bacilli were found, but a culture of monilia was isolated. This culture and additional specimens from the patient were sent to us for further study. A few acid-fast bacilli were seen in one stained preparation made from the sputum, but no others could be found in any of the specimens, even upon repeated examination. The patient finally began to improve, and about a year later seemed in perfect health.

The second was a man of 66 who had been superintendent in a burlap bag factory where he was exposed to dust from the cleaning of coarse fiber used in weaving. For several years he had had symptoms resembling those of tuberculosis. He had visited various sanatoriums and, although a large number of sputum specimens were examined, no tubercle bacilli were found. In one sanatorium, a diagnosis of sporotricosis was said to have been made, based on the finding of the organism in the sputum.

At the time the first specimen of sputum was sent to our laboratory, the patient had been acutely ill for about 6 months, a lung abscess and empyema having developed. Following a series of severe hemorrhages, a rib resection was made and the abscess drained. After this treatment no more hemorrhages occurred, but profuse drainage and considerable coughing continued. The general condition of the patient deteriorated until he died 19 months later. An autopsy was not secured. Cultures of monilia were isolated from 3 of the 6 specimens of sputum submitted at intervals during a period of 11 months. No acid-fast bacilli were found in any of them, but a guinea pig

inoculated with one of the specimens from which monilia were isolated developed generalized tuberculosis.

The information concerning the clinical manifestations in the other cases is more limited. The data available may be summarized as follows:

A man of 32 with a clinical diagnosis of pulmonary tuberculosis.

A boy of 17 who had had an appendectomy 3 months prior to the development of a pulmonary abscess at the base of the right lung; coughing, expectoration, and pain were said to be the predominating symptoms.

A man 72 years of age with a cough and a slight rise in temperature.

A woman of 60 with chronic bronchitis, laryngitis, and pharyngitis, and a considerable amount of frothy mucous sputum; she had a history of cholecystitis of over 2 years' duration. Four months before the receipt of the first of two specimens from which monilia were isolated, the patient was acutely ill with pneumonia followed by pleurisy and jaundice, and type-II pneumococci were isolated from a specimen at that time.

A farmer 34 years of age having acute pleurisy with effusion.

A laborer-mechanic of 35 having had chronic bronchitis, rheumatism, and chronic myocarditis for 10 years following war service.

A woman of 28 with bronchitis of a few weeks' duration.

A woman mill worker visited a clinic for a chest examination; the attending physician found no evidence of tuberculosis, but requested the examination of a series of sputum specimens.

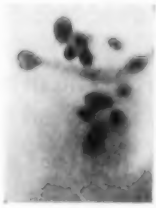
A man of 40 concerning whom no history has been obtained.

Monilia pathogenic for rats have been isolated also from the exudate from 2 cases of thrush and from 1 of vaginitis; and from the feces of a patient with a history of diarrhea of 8 months' duration and recovery following treatment with bismuth and potassium iodide.

In morphology, the monilia studied resemble yeasts (see Figures I and II). The cells are elliptical and reproduce by budding, while short hyphae are often noted. No ascospore formation can be demonstrated.

The cultures grow readily on the usual laboratory mediums. On agar, the growth is thick and creamy with a tendency to coalesce. Gelatin is not liquefied. The fermentative reaction with different carbohydrates has been found to vary. All of the strains studied ferment dextrose and most of them also saccharose and maltose. Dextrose broth has been found to contain ethyl alcohol after representative cultures have grown in it for 4 days.

All of the cultures have proved pathogenic for rats, and those tested have been found pathogenic for rabbits also. By intravenous inoculation, one-twentieth, or sometimes less, of the 24-hour growth on an agar slant is usually fatal for white rats and small rabbits in from 1 to 5 days. Adult rabbits may survive a single inoculation, but



FIGURES I AND II—A 24-hour culture of monilia on dextrose agar. Stained with dilute carbol fuchsin. × 710 diameters.

are killed by repeated doses. If white rats live for from 3 to 5 days following an intravenous inoculation, the lesions in the kidneys are characteristic. The surface of the organ is profusely dotted with raised yellowish white areas about 1 mm. in diameter. Sections of the organ (see Figures III to X) show a severe, extensive nephritis. The cortex is almost entirely destroyed, only a few islands of convoluted tubules of relatively normal appearance remaining. The majority have undergone granular degeneration with hemorrhage and mononuclear cell infiltration. The glomeruli are extensively involved, some showing precipitated albuminous material in the glomerular spaces, others extensive hemorrhage or hyaline necrosis. The medulla is hyperemic and edematous, but the large masses of necrosis found in the cortex are absent. When Gram-Weigert stain is used, numerous colony-like masses of fungi are found throughout the kidney, but particularly in the cortex. The cellular elements appear as globules, varying in size from approximately 1 μ to 12 μ, and varying from light violet to intensely stained forms, with small and large intracellular granules. Numerous short mycelial filaments, some of them about 30 μ in length are seen.

FIGURE III—Section of kidney of rat (M. 3980) dying 3 days after intravenous inoculation with monilia. Stained by Gram-Weigert method. × 5 diameters.

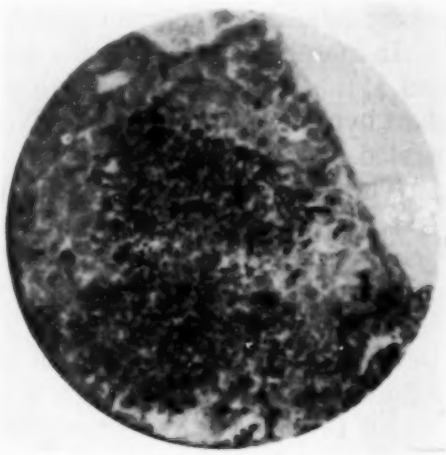
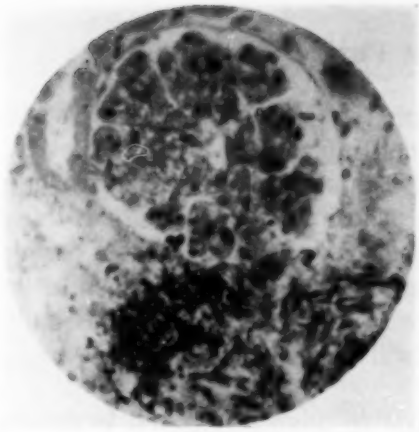


FIGURE IV—Section of kidney of rat (M. 3980) dying 3 days after inoculation with monilia. Eosin methylene blue stain. × 290 diameters.



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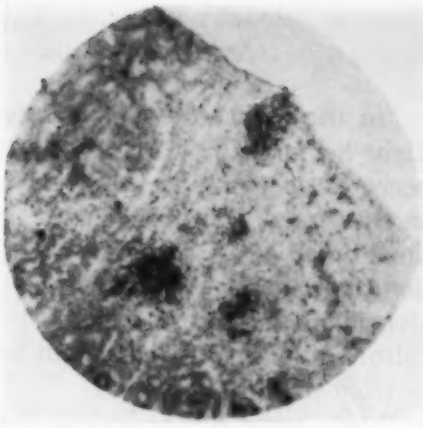

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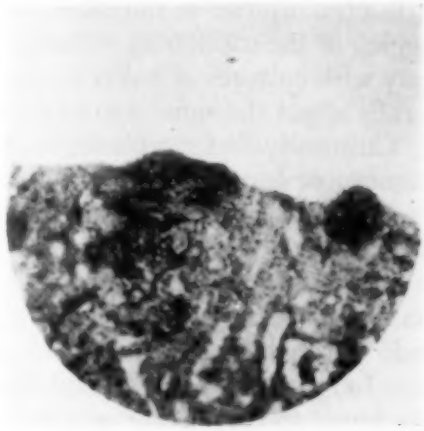

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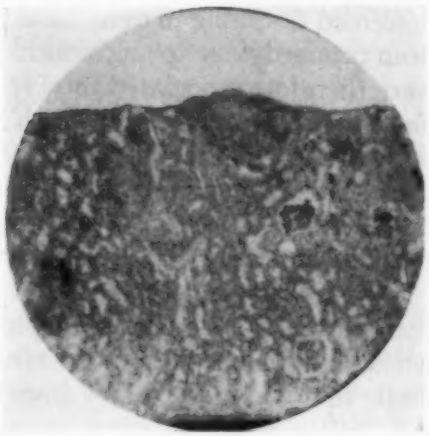

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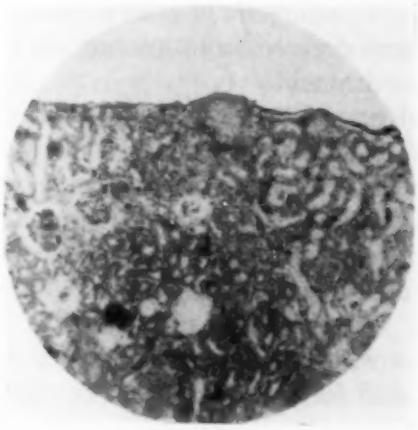

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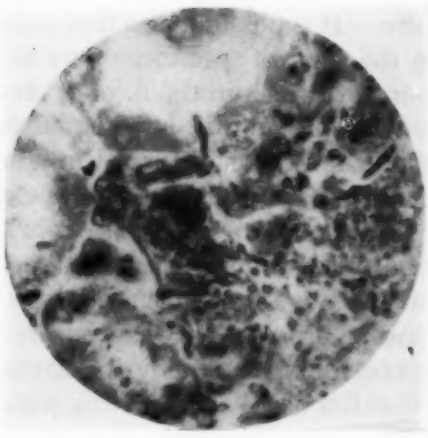

X

FIGURE V—Section of kidney of rat (M. 3980) dying 3 days after inoculation with monilia. Eosin methylene blue stain. × 390 diameters.

FIGURE VI—Eosin methylene blue stain. × 70 diameters.

FIGURE VII—Stained by Gram-Weigert method. × 100 diameters.

FIGURE VIII—Section of kidney of rat (M. 3980) dying 3 days after inoculation with monilia. Eosin methylene blue stain. × 70 diameters.

FIGURE IX—Eosin methylene blue stain. × 70 diameters.

FIGURE X—Eosin methylene blue stain. × 840 diameters.

In the myocardium and liver, numerous focuses of necrosis with slight hemorrhage and mononuclear cell infiltration are found. Evidence of encephalitis with perivascular mononuclear infiltration, and an occasional necrotic area resembling those in the other organs mentioned may be noted in the brain. Sections of the lung show congestion and edema with numerous polymorphonuclear leucocytes in the alveolar exudate, presenting a picture of early pneumonia. Usually, cultures of the organisms can be readily isolated from these organs or from the heart's blood.

Since some of the lesions appeared to have originated in minute infarcts and since the monilia cells are much larger than most bacteria, it seemed desirable to determine whether the injuries to the tissue had been primarily due to mechanical plugging of the capillaries. Animals were therefore inoculated intravenously with cultures of baker's yeast, *Saccharomyces cerevisiae,* which has cells about the same size as those of monilia, or perhaps a little larger. Culturally and morphologically, yeasts resemble monilia, except that ascospore formations can be demonstrated. White rats, guinea pigs, and rabbits receiving intravenous inoculations of massive doses seemed uninjured.

Proof was not obtained that the strains of monilia isolated from the sputum were incitants of pulmonary lesions in the patients from whose specimens they were obtained. Probably, in some cases at least, they were secondary invaders. Judging from the behavior of the similar, if not identical, organisms found in thrush, the vitality of the individual may need to be markedly lowered before infection occurs. It is possible also that some of the pathogenic species of monilia in the sputum specimens may have been derived from unobserved lesions of thrush in the mouth, throat, or bronchi.

The finding, in large numbers, of organisms capable of inducing such characteristic lesions in laboratory animals in only a small percentage of sputum specimens examined, and the fact that the specimens containing them have, in most cases, come from patients presenting some evidence of pulmonary disease would seem to warrant an investigation of the etiological relation of the organisms to any disease process that may be present. Such a study can of course be successfully made only in laboratories where there is opportunity for repeated observation of the patient, and for a post-mortem examination.

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2. Stovall, W. D., and Greeley, H. P. *Bronchomycosis*—Report of Eighteen Cases of Primary Infection in the Lung, *J. Am. M. A.,* 91: 1346, 1928.

Standards for Public Bathing Beaches and Wading Pools*

BEFORE proceeding with the discussion of the two topics assigned to us for special consideration at the 1928 meetings of the Conference of State Sanitary Engineers, and of the Public Health Engineering Section, your committee wishes to call attention to the need for special precautions to prevent the spread of infectious skin diseases of the feet at swimming pools and other public bathing places.

FOOT DISEASES

Although such diseases are not reportable, and their prevalence is not a matter of official record, unofficial reports of the occurrence of ring worm, toe itch, toe scald, fungus foot, papilloma, and similar infections at pools and beaches in various parts of the country are becoming more and more frequent.

Most, if not all, of these foot diseases are caused by a fungus which is spread by infection of the floors of dressing rooms, etc., at pools, bath houses, gymnasiums, and other places where persons go barefoot. While control methods have not been completely worked out, the following preventive measures will prove useful in checking the spread of these diseases:

1. The feet, and especially the toes, of all bathers should be inspected regularly, and those persons showing infection should be excluded from the pool and dressing rooms and advised to consult a skin specialist. The disease may show around the base of the nails or between the toes as raw open sores—the sodden type; as small or large blisters—the vesicular type; or it may resemble eczema. The type which the disease exhibits may change from time to time in the same patient, depending on circumstances.

2. Wash all floors, benches, and stools in dressing rooms, diving boards, out-of-water portions of ladders or steps, rubber mats, etc., daily with a strong solution of chlorinated lime or chlorinated soda. It is known that the fungus will grow readily on silk and cotton goods and on leather, and it is believed that it will also grow on damp wood;

* Report of the Joint Committee on Bathing Places of the A. P. H. A. and the Conference of State Sanitary Engineers, presented to the Public Health Engineering Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 1, 1929.

so special attention should be paid to disinfection of any woodwork with which the feet of bathers may come in contact. Canvas mats or pads should be abolished.

3. Take precautions to insure that there is no exchange of unsterilized towels, suits, bathing slippers, etc., among bathers. All suits and towels should be thoroughly sterilized by boiling before being dried for reissue, as recommended in the last report of this committee.

BATHING BEACHES

The committee would again call attention to the sanitary requirements for public bathing beaches recommended in paragraphs II, III, XII, XIII, XIV, XIX, XX, and XXI of its report for 1926,* entitled "Standards for the Design, Construction, Equipment, and Operation of Swimming Pools and other Bathing Places."

As stated in paragraph III, A, the committee is of the opinion that "It is very desirable that the bathing waters at public bathing places on natural streams, lakes, and tidal waters should be of the same standard of bacterial quality as is required for swimming pools." It is recognized, however, that the strict application of swimming pool water standards to all public bathing waters would probably not be practicable at present. Furthermore, since there is not now available any sufficient volume of data as to the quality of waters now used for bathing, nor any sufficient record of the causation of disease by bathing in moderately polluted waters, your committee feels that any definite standard of bacterial quality which it might propose would be purely empirical.

In the case of swimming pools it was entirely fair to set up a high standard of bacterial quality, since effective methods were available by which such quality could be maintained at a reasonable cost. The bathing beach problem is distinctly different. In certain instances it may be feasible to treat the water at the beach satisfactorily with chlorine or other disinfectant. In the majority of instances, however, to set up and attempt to enforce a high standard of bacterial quality would mean that we would be forced either to condemn many waters now used for bathing, or to attempt to reduce the pollution by elimination of the sources or by treatment of sewage discharged therein. As in many cases there has been a considerable capital investment at these beaches, not only in bath houses and bathing equipment, but also in amusement facilities, any attempt at condemnation, except following an epidemic traceable to the pollution of the waters, would meet with strong opposition both from the public, who have been accustomed to

* *A. J. P. H.*, XVI, 12: 1186 (Dec.), 1926. For 1927 Report, see *A. J. P. H.*, XVIII, 2: 194 (Feb.), 1928.

bathe regularly at these beaches, and from persons whose investment would be wiped out by their closing. On the other hand, the reduction of pollution usually means a large expense for sewage treatment and considerable delay while such treatment works can be planned, financed, and constructed.

It would seem to your committee, therefore, that while it is entirely legitimate to use pollution of bathing beaches as an argument in a program for a clean-up of public waters, the bathing beach problem is one which should properly be worked out by local and state authorities for the best interests of all parties concerned in each particular locality, unhampered by any empirical standards.

In a swimming pool the major danger to health of bathers comes from fresh secretions introduced into the water by other bathers. At a public bathing beach where a large volume of water is available for dilution, the danger of infection by such personal discharges is very much reduced, and the major health hazard becomes that of pollution of the water by sewage. The potential danger to health from bathing in water at any particular beach can only be determined by a complete survey, in which dilution of the polluting sewage, and the effect of tides, winds, and other factors in producing currents, are given full weight in the interpretation of the results of bacterial and chemical analyses of the water. In such an interpretation it must ever be borne in mind that the time-travel-distance factor of polluting waters is of paramount importance from a public health viewpoint. Direct pollution by fresh sewage from nearby sources, even though relatively small in amount, is potentially more dangerous than pollution by a much greater volume of sewage some distance away. It should also be recognized that a bather is much less likely to take into his mouth and swallow salt water than fresh, and for this reason the same degree of pollution may be potentially less dangerous at the sea-shore than at a bathing place on an inland stream or lake.

WADING POOLS

With increasing attention paid to the sanitation of swimming pools throughout the country, the attention of many sanitary authorities is being attracted to the need for improvement in the sanitation of the numerous shallow wading pools which have been installed for use of children in public parks and playgrounds. Early in the summer, your committee sent out a questionnaire asking the opinion of the various state sanitary engineers as to the advisability of attempting to control the sanitation of these pools, and as to what standards of water quality, cleanliness, etc., it would be practical to establish. Replies

have been received from only 12 states, an insufficient number to enable your committee to determine the consensus of opinion of the health authorities of the states on these questions, and make any definite recommendations. The replies already received, however, indicate that:

1. It is both desirable and practicable to establish a system of supervision over sanitation of public wading pools similar to that now exercised by public health authorities over swimming pools.

2. It appears inadvisable at present to require the same standards of water quality for very shallow pools used for wading only as are required for swimming pools.

3. For administrative purposes a distinction on a basis of maximum depth of water should be established between swimming pools and wading pools.

STEPHEN DEM. GAGE, *Chairman*
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Men's Clothing

DR. Borland says: Take the question of cleanliness. The average woman wears light fabrics, which quickly show the dirt, but are easily and frequently cleaned. Have you ever considered how long a man's suit goes without being *thoroughly cleaned?* Men's clothes actually come into contact with and absorb more dirt than women's; but it does not show so much because of the darker color of the cloth. *The dirt is there all the same, although not seen,* and where there is dirt you will find germs. Consider hygiene in a broader sense. The many layers and heavy, thick material of men's garments make them thoroughly unsatisfactory from a health point of view. What chance has sunlight or fresh air of gaining access to the body? The perspiration, instead of evaporating freely with an inappreciable odor, is retained by the inner and outer layers of clothing. They become clammier and clammier, giving off an unpleasant and unhygienic odor. These damp, clammy clothes are also responsible for many of the so-called summer colds. What are the remedies? Changes can only come about by desire, thought and action. Men should realize their conservatism in dress and the need for more progressive ideas.—Dr. Vynne Borland, quoted in *Med. Off.,* Sept. 21, 1929, p. 135.

Need for Cancer Morbidity Statistics*

FRANCIS CARTER WOOD, M. D.

Director of the Institute of Cancer Research, Columbia University, New York, N. Y.

TO a great extent the only available large scale statistics on cancer are those based on death certificates. These possess, as everyone knows, certain uncorrectable errors due to lack of accuracy in the primary documents. Such cancer death records, even with all possible corrections, are of but little value in the practical evaluation of the results of treatment, or lack of treatment, for any given individual with cancer; nor will any possible increase in accuracy of ordinary death records as at present made furnish such information.

The reports of the U. S. Bureau of the Census can rise no higher than the source of information, which is a death certificate. That these records may err by some 30 to 40 per cent may seem astonishing to statisticians, but not to pathologists. Full information on the matter has been in print for years, and Wells has recently again called attention to it. The only method of obtaining correct statistics is the basing of all diagnoses on autopsies. With the present attitude of a large proportion of the population, this is obviously impossible, and unfortunately even in so advanced a country as Switzerland which, as Hoffman has pointed out, has reached in all probability an approximate maximum rate for cancer in a white population, that is, some 125 to 130 per 100,000, there has been a recent check placed on autopsies. Unquestionably therefore the Swiss cancer rate will fall in the future.

These facts are also reflected in the great differences which exist between the cancer death rates in the larger cities with high grade hospitals, and those of the rural districts. The differences are just as striking as are the differences in the cancer rate of, say, Denmark and Switzerland and that of the United States.

As I have said, the statistical analysis of deaths cannot rise higher than the accuracy of the certification by the physician; so the country's cancer death rate is a reflection of the diagnostic accuracy, or rather inaccuracy, employed in making such reports. To the layman it may seem strange that a patient can die with cancer and yet have

* Read before the Vital Statistics Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 1, 1929.

no symptoms of the disease; yet every pathologist knows that this is not only possible, but not infrequent. For example, in the last two years I have seen 6 such patients autopsied in which no possible diagnosis of cancer could have been made before death. In one of these, two expert surgeons examined the patient with the greatest care and stated definitely that certain symptoms and suspicious bone changes could not be due to carcinoma of the prostate. Nevertheless, at autopsy the only carcinoma which was found was in the prostate and in the bones. The type in the bones was that of a prostatic carcinoma.

Another similar case without the bone changes entirely escaped diagnosis for that reason and was only shown to have carcinoma of the prostate at autopsy. While small tumors like these are not always the immediate cause of death, they may impede the flow of urine, inducing back-pressure on the kidneys with damage of their function, and either death from uremic disturbances or secondary infection.

Of two other illustrative cases there was one in which several operations were done to relieve adhesions between the intestines. The patient finally died of intestinal obstruction and a carcinoma of the ileocecal portion of the intestine was found. It was a diffuse growth and could not possibly have been felt by the surgeon who did the operations. It had no immediate connection with the cause of death, but unquestionably the patient's symptoms were due to this growth, and she would not have died unless the growth had been present.

In another instance a case of carcinoma of the stomach was not correctly diagnosed during life, though the patient was under observation for a number of months and every diagnostic facility used which a large metropolitan hospital could offer. In two other cases wholly unsuspected metastatic melanomata were found only at autopsy in the viscera. In one the history recorded the fact that a mole had been burned out of the skin of the back with radium four years before. In a second a small perforating ulcer of the foot was observed clinically but there was no evidence that this was of a malignant nature; yet at autopsy melanotic tumors were found in the heart muscle and elsewhere. Evidently tumor particles from a small plantar melanoma had been massaged into the circulation by the patient walking on the foot.

These 6 recent examples occurring in the course of only about 200 autopsies illustrate clearly enough the absolute impossibility of diagnosing a certain proportion of instances of cancer without autopsy. Unquestionably a large number of patients die with cerebral, pulmonary and abdominal carcinosis in which no diagnosis of the disease is made.

The constantly increasing crude rate in the United States is admirable evidence that the ability to cure the individual patient is so small that it makes no impression on the general trend of the disease, but when it is realized that only one-fifth of the cancer cases in a large city that apply to a general hospital are in a sufficiently early stage to warrant operation for the cure of the disease, it will be immediately realized that it is not surprising that the best modern treatment has had no effect on the disease. As a matter of fact, to say that 20 per cent of the patients who enter a hospital are operable is certainly a very optimistic exaggeration of the conditions applying all over the country.

In rural districts practically no cases come in time for curative treatment. This situation is due in part to the extreme difficulty of the diagnosis of the disease already referred to, in part to the gross ignorance of the patient, and in part to the lack of modern training of a considerable proportion of the medical profession. Again, the activities of quacks, mental healers and others who criticise the methods used by the medical profession to treat cancer, play a part; and often such irregular healers urge patients to follow a course quite different from that advised by the physician whom the individual may have consulted.

At present the tendency is not to speak of the cure of cancer, but rather of its arrest. The reason for this change in phrase is the fact that a careful study of large series of treated patients shows that late recurrences may take place 8 and 10 years after an operation; and that a person who has once had a cancer is by no means prevented from having a second, and possibly is more likely to have a second. Hence the tendency is to consider operative or other treatment as palliative rather than curative.

In order to estimate the palliative value of any type of treatment, the expectation of life of the untreated case must be known with some accuracy. This is not a simple arithmetic average of the survival period. That assumes that the term of existence of that sample of the population having cancer follows a strictly Gaussian probability curve, whereas in fact the curve is probably highly skewed in man as it is in animals bearing tumors. Figure I shows this. Hence some effort should be made to determine the mode in addition to the simple arithmetic mean.

In order that such data may be practically useful, age groupings are essential, and what is still more important is some information as to the site of the growth, its size when discovered, and its gross and microscopic characteristics. Without this information any prognosis

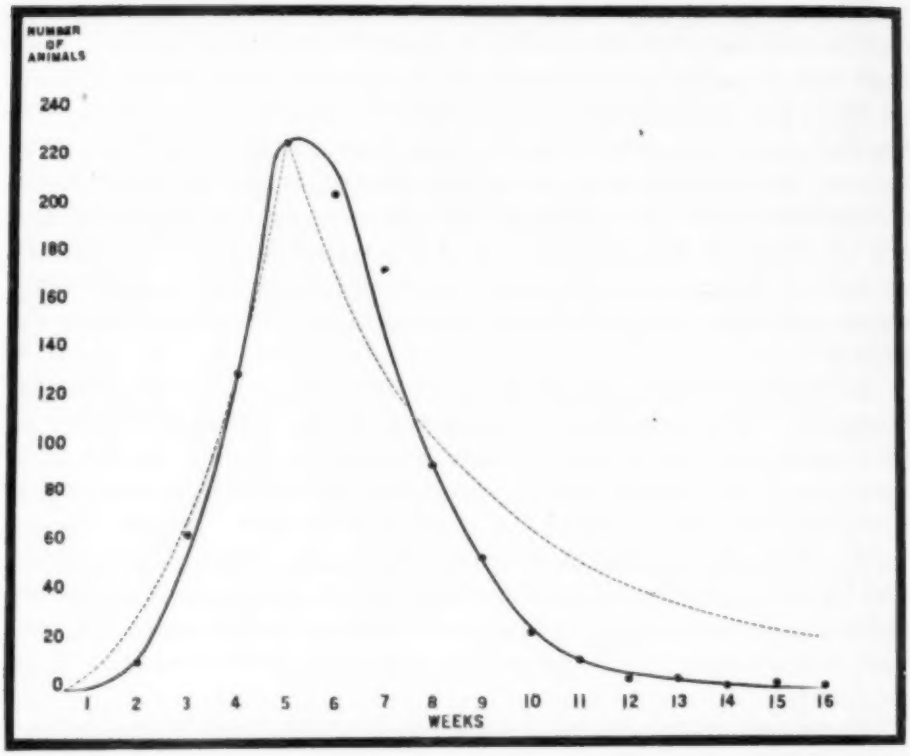

FIGURE I—The curve shows the time of occurrence of death in 1,000 rats of the same strain inoculated with the Flexner rat carcinoma (FRC). The time intervals are weeks. The average survival period is obviously 8 weeks. The mode is 5 weeks. The weighted mean taken by multiplying the number of deaths in each group by the weeks practically corresponds with the mode in this tumor, but this is an accidental agreement as in other tumors the weighted mean differs from the mode. The dotted curve represents the deaths of *Drosophila* eggs after exposure to X-ray. It is merely included to show that curves similar to the tumor death curves are obtained by the action of another lethal agent on another biological material. The coördinates in this case should be the percentage of the survivals and amounts of X-ray.

as to the results of treatment of any type of tumor is impossible. As an example, selecting a site where tumors are external and should be diagnosed easily and early, it has been found that some tumors of the female breast, though very small, are very frequently fatal. These are the small celled tumors in fat women, especially when the tumor is in the mesial aspect of the breast. The tumor is not noticed early because of the bulk of the fat which surrounds it. It metastasizes rapidly because of the small size of its cells, and the path which these cells follow is directly back into the thorax, thus involving the mediastinum and the lung at a very early date. Such metastases are not removable by surgery nor curable by X-ray or radium.

On the other hand, the rapidly growing, morphologically highly malignant tumor in a thin woman in the outer half of the breast, composed of large cells, or of cells which make mucus, will be diagnosed so easily that there will either not be any metastases along the lymph channels into the lymph nodes of the axilla or, if such an occurrence does take place, the large cells will be caught in the lymph nodes and held there for a period. These patients are the favorable type and form the majority of those who survive their operative treatment over long periods. Every surgeon has such cases living ten, fifteen and twenty years after operation.

That the mechanics of the situation are important is evident from the fact that the mucoid cancers of the breast, which form sticky masses from which the cells escape with great difficulty, give a very high percentage of permanent cures. Unfortunately this type occurs in the breast only in about 1 per cent of the total cancers of this region.

If this Association is to do anything to improve this sorry situation which now exists in the treatment of cancer, it should stand squarely behind making cancer a notifiable disease. If this could be done, the situation would be benefitted in a variety of ways.

The making of diseases notifiable has hitherto been to protect the community from such individuals as have infectious diseases. Such reason does not apply to cancer. The importance of making this disease notifiable is to protect the individual from a purely personal and, unless promptly treated, inevitably fatal condition.

Physicians on the whole are rather fed up with the general statement of propagandists that 1 woman in 5 and 1 man in 8 of those dying between the ages of 45 and 65 will pass on from cancer. They are only mildly interested in the fact that cancer is now second to heart disease in the list of causes of death. What they do want to know as quickly as possible is what to say to the individual who has a cancer. For example, does any form of treatment really prolong life? We can answer this in a positive way. For those who come with cancer in an exceedingly early stage, surgery, radium and X-ray have unquestionably prolonged the lives of many for many years, so long in fact that it is proper to speak of a "cure." But at least 80 per cent of those who consult a physician are entirely beyond cure. What shall be done?

Today we have no reliable evidence as to the natural duration of the disease in different sites, and of the different types which will permit a physician to make a definite statement. For example, in a case of cancer of the rectum, will a simple palliative operation give the

person more comfort and prolong his life for a longer period than will palliative treatment with X-ray or radium? It is generally held by surgeons that a colostomy relieves pain and enables a patient to live for a considerable time in much better condition than if no such operation is done, and it is possible to say to the patient that considerable statistical evidence exists for believing that the average patient with untreated cancer of the rectum lives only about 26 months. But how does he live when untreated? We know roughly that he generally lives in abject misery. The person with a colostomy is much more comfortable.

The patient as an individual is not interested in the average length of life but how long *he* is going to live. If he has a diffuse infiltrating small cell carcinoma of the rectum, will he live a shorter time than a patient with a colloid carcinoma? No facts, but only general impressions, are available. If he has a colloid carcinoma, should he avoid a dangerous and extensive operation and fall back upon X-ray and radium?—or had the risk of the operation better be disregarded, to take instead the chance of permanent arrest of the growth, in case its removal is possible, rather than to attempt palliation by radiation methods?

The physician is daily asked to decide whether a patient with a doubtfully operable cancer of the breast will live longer with operation plus post-operative radiation, or will do better to avoid operation and rely upon X-ray and radium palliation. It is evident that these questions can only be answered if we have carefully collected statistics of the length of life of untreated cases which have been observed under conditions which will record the type of tumor, the X-ray demonstration of possible metastases and other facts which determine more than the mere presence of the growth—the natural duration of life under the particular circumstances. Now is the time to get such figures. In a few years all patients will get some form of treatment.

I do not for one minute suggest that these criterions will be available in this generation, but if only one state could be induced to make a beginning, facts would shortly be collectable. A good illustration of the necessity of such figures can be drawn from a collection in an extensive and valuable paper by Janet Lane-Claypon.[3] The learned author states that "the study of late results in relation to the microscopical characters of the growths reveals no significant difference in the survival rates for growths of highly cellular type and those of scirrhous type." Yet undoubtedly there are differences. "The results of operation in cases of adenocarcinomata are more favorable than of either of the above form and those obtained with duct and

colloid cancer are decidedly better. The samples of these latter varieties are however very small."

These conclusions are based upon the study of nearly 2,000 cases of cancer of the breast with pathological reports. The difficulties, however, of accurately classifying the material, owing to the variability of the pathological reports and the clinical records, is acknowledged, and some of the samples are so small that studies of more cases will be necessary before definite results can be obtained. In other words, even in so laborious an investigation, backed by the authority of the English Government, conclusions are of necessity drawn in such general terms that they are of relatively little applicability to the individual patient. Yet daily the physician has to advise the afflicted patient.

There are, on the other hand, individual collections, mostly from hospital material, which cover certain points, among them length of life of treated or untreated cases, etc.; but of course it is well known that a hospital population does not represent an accurate sample of a disease occurring in the population as a whole. The number of patients studied in such special collections is small and the results are presented chiefly as arithmetic averages. None of the statistical collections with which I am familiar have sufficient material to permit of satisfactory age groupings; in practically none of this material are histological reports available, and therefore they, as well as the mortality statistics, are wholly valueless in forming a judgment as to the care of the individual case.

Dublin has approached the problem in a paper read at the Mohonk Conference[2] by preparing life tables of cancer from the registration area figures for 1910, 1922 and 1924. But such tables have the inherent errors mentioned above and treat the disease as an entity without reference to organs or types. Such material is useful for propaganda purposes to dramatize the situation, but lacks the specificity required to be of practical value.

The best analysis with which the writer is familiar is that of Professor Major Greenwood.[3] In his short paper the author discusses with great shrewdness the actuarial difficulties which render special collections no true sample of the population, the errors which underlie the alleged duration of untreated cases, and other fallacies which unavoidably creep into the primary records which furnish our only material for study. Supplementary evidence is available in a report by Sir George Buchanan for the League of Nations. (III. Health, 1927, III, 17.) There the mean duration of cancer of the breast and cervix of Italian women is shown to be very much smaller than for

English women, and the report cautiously suggests that there may be racial differences in growth rate. This may be a statistician's explanation; but the physician who sees a large amount of Italian material will rather believe that the ignorance and superstition so evident in the Italian peasantry may be reflected in the short duration of neoplasms in the race because the disease is only recognized at a late stage, and after all we only have the patient's statement as to duration. The difference in operability for cancer of the breast in the educated classes as contrasted with the advanced lesions seen in the manual laboring people is a commonplace matter to every physician of large clinical experience.

CONCLUSIONS

1. Making cancer a notifiable disease would in time greatly increase our knowledge of the multifarious group of diseases now roughly grouped for statistical purposes under a single head of cancer.

2. It would stimulate the physician to early diagnosis, as he would be later checked up by someone else if he failed to diagnose the tumor promptly.

3. Such an official record would encourage the patient to make use of the best treatment and would do a good deal to inhibit the activities of the quack, who would be exposed to publicity through the premature death of his patient. This partial control of the patient's activities through the state or local boards of health is one of the most important collateral effects of such notification.

4. The compulsory registration of all cancer cases would be a check on the death certificates which are now frequently signed "heart disease" or "pneumonia" in deference to the family's wishes.

5. When such notification becomes fairly widespread, invaluable records of the rate of growth of tumors, and length of life of the patients (which are not synonymous) will be obtained. It is not too much to hope that within two decades it would be possible to have a still more complete record of the types of cancer which offer a reasonable chance of cure; in fact, microscopic slides from such patients, or a photomicrograph from such a slide would be a part of the death certificate. Only the larger hospitals now store microscopic slides from all their cancer cases in order to have a medico legal record as to the correctness of the diagnosis; but the development of county hospitals with more or less satisfactory laboratory services is rapidly going on and their records will ultimately be available.

The first step that must be made is to have the disease notifiable. We will then be able to get at the present crying need, which is not of mortality records, but of the number of people who have cancer in a community and the length of time which they live after such a cancer is discovered. How can one decide whether an operation or X-ray or radium treatment is justifiable even from the purely palliative point of view if there exist no trustworthy figures as to the length of life in a similar group of cases wholly untreated? And yet every patient with cancer offers this and other problems.

What is the chance of cure by removal of the tumor? If cure is not possible, will a palliative operation really prolong life, and if so how much? Does either radium or X-ray offer a better palliation in case removal is impossible? Will a combination of the two be better than either alone?

Making cancer a notifiable disease will not answer many, much less all of these questions, but it will in time solve some of them, and if we may reasonably hope for complete notification records throughout the country twenty years from now, a beginning must be made immediately. Do we not still suffer from the disgrace of being a civilized nation with a " registration area "?

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DISCUSSION

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IN the light of many years' experience, I am absolutely convinced that the registration of cancer patients is feasible on the part of the local health authorities. The objections, raised in the light of local experience, which have proved a failure, do not in my judgment operate against the proposal. Such objections have always been raised against notification of other diseases, particularly typhoid fever, leprosy, and most of all, the venereal diseases. It will take time, of course, to build up a system of reasonably complete notification, but I am absolutely convinced that this is possible.

I am familiar with the unsatisfactory experience which has been had in Massachusetts. Dr. Lombard, Director, Division of Adult Hygiene, of the Massachusetts State Department of Health, writes me with reference to this matter, in part as follows:

> This department feels that the reporting of cancer is not practicable at the present time. We attempted a cancer morbidity reporting area in the city of Newton with the idea of determining whether it was advisable to make cancer reportable for the state as a whole. This experiment was a failure, as only about one-third of the cancer in Newton was reported.

It would be expecting too much that a new movement in public health should be a success from the outset. The late Eugene R. Kelley, M.D., former State Commissioner of Health of Massachusetts, was firmly convinced that it was a practical possibility. It is all a question of intelligent statutory regulations and of sufficient force exercised on the part of the health departments with the coöperation of physicians to make the measure a reasonable success. But these are naturally reluctant to assume additional clerical burdens, and fail to realize that they are accountable to the community. Compulsion alone will insure success. I agree that voluntary coöperation is always a failure.

Dr. Lombard writes further to the effect that—

> On three occasions we have questionnaired all the physicians in Massachusetts regarding the volume of cancer. About one-third of them replied, and from their answers we estimated that at any one time there are about twice as many cases as there are annual deaths.

I am satisfied that voluntary registration is a hopeless effort. The matter must be made a statutory requirement and derelict physicians must be held to account for their failure to obey the law.

Dr. Lombard also pointed out to me that an effort was made to obtain information by house-to-house surveys, and that five localities are at present being investigated in this manner, with other localities in prospect. But such an effort gives merely a cross-section on a given date and does not meet the real necessities of the situation. Not much of value has been forthcoming as the result of so-called sickness surveys just for the reason that they are merely cross-sections and do not present a continuous line of observations.

Cancer should be reportable because of the need for definite information as to the course followed in subsequent treatment. The real underlying reason for our present excessive cancer death rate and the increase in cancer mortality is due to the vast amount of superficial early treatment, responsible for delays which ultimately result in death. Until we take the cancer situation more seriously and remove it from the present-day apathy and indifference, no reduction in the rate by deliberate means and methods will be successful. Every suspicious tumor case should be promptly reported to the authorities, and every effort should be made to insure to the patient the best possible mode of treatment. That would be absolutely impossible without notification and I therefore sincerely trust that this Association will put itself behind a recommendation that cancer throughout the country be made a notifiable disease.

But this is merely the first step in the right direction. As a second step, there is the utmost urgency for a complete follow-up system, at least in all hospital cases. Cancer is a chronic disease which must be watched with the utmost care, even after operation. Countless persons fall victims to cancer because of post-operative neglect and indifference. Furthermore, there is the necessity of ascertaining a correct measure of operative results, and only collective aggregates on a large scale can give us figures useful for the purpose of public instruction.

Until the public has exact data showing the truly amazing results of early treatment in cancer cases and the ratio of survivals after a number of years, it will remain unconvinced about much of the present-day propaganda for early treatment. There is nothing else to go by than the assurance that early treatment affords a reasonable hope for a cure.

The methods in this respect which have been followed by the Ministry of Health of Great Britain, particularly in the admirable reports of Dr. Jane Lane-Claypon, are deserving of serious consideration. We need such statistics for this country for we have every reason for believing our American operative results and radiological results will prove equally encouraging, if not more so.

Mention may also be made of the encouraging statistics published in English by the Radiumhemmet of Stockholm on the great value of radium treatment. It is precisely such information that we are really most in need of for this country. In other words, in the light of my experience with cancer investigations, the first necessity at the present time toward a better solution of the problem of cancer control is the compulsory notification of cancer cases amplified by extended investigations into the post-treatment results whatever the method of treatment may be.

The Duties of the Nursing Staff in a Health Department Communicable Disease Service*

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BEFORE discussing the duties of a bureau of public health nursing staff to a communicable disease bureau, let us consider the aims of these two services. While the aims of a communicable disease bureau may vary in different communities, the following were named by the chief of this service in the Syracuse Health Department:

1. Disease prevention
2. Enforcement of legal requirements
3. Epidemiological studies and research
4. Health education
5. Coöperation with physicians

The aims of a public health nursing service are described by Dr. Tobey as follows:

> Public health nursing has as its object the saving of life, the upbuilding of family health, and the promotion of community sanitation and hygiene; it deals with individuals and families in its efforts to restore the sick to health, to find and correct physical impairments, and to teach the practice of healthful living and the establishment of hygienic habits.[1]

Public health workers will see much in common in these aims, and the extent of service is limited only by the number of nurses available and the amount of contagion in the community.

The first means of measuring even a minimum of what might be expected in both services is given by the *Appraisal Form* of the American Public Health Association. The score is based on the following points: reporting, case investigation and recording, disease control, visits to cases, diagnostic service, hospitalization and immunization.

At first thought, it would appear that a nursing service had little to do with reporting of communicable diseases, but if the suspicious conditions reported by the nurse and verified by a physician are recorded, it will be found that she plays an important part. This was

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evidenced by our own experience in an epidemic of measles which extended over 3 years—1926–1928. During that period 8,421 cases were reported, of which 2,187 or 26 per cent were reported by public health nurses, 23 per cent by those of the Department of Health.

In case investigation and recording, the public health nurse is the ideal worker, as the investigation furnishes the observation necessary for adequate quarantine, securing laboratory specimens, advice on hospitalization and immunizations, and a basis for the needed number of follow-up visits. The keeping of spot maps and chronological charts belongs to the communicable disease bureau. They are of great value, however, to the nursing bureau in creating interest and renewed effort in a danger zone.

Perhaps the most important factor in the success of a nursing service is the type of nurse employed. The first study made by this section of the American Public Health Association was on qualifications for public health nursing positions.[2] The requirements suggested were progressive in the time element, so are still valuable. Beside the qualifications required for any public health nurse, the moral and social qualities—honesty, faithfulness and dependability—are greatly to be desired. Health departments usually are not free to search the country for this type of worker, frequently being limited by civil service to their particular communities. Their staffs are likely to have some nurses, both old in training and in years, appointed before standards were considered important. Many of these have grown professionally through valuable experience and personal development, while others have plodded along satisfied with the status quo. It therefore becomes the duty of the department or bureau to carry on a continuous educational program on the newer methods of treatment and control of communicable diseases. There is no field in public health where "new occasions teach new duties, time makes ancient good uncouth."

What are some of the important things the public health nurse should know?

1. The nurse should know how to teach personal and home hygiene.

The community that furnishes instruction in personal and home hygiene is building its strongest defense against communicable diseases. Diet, rest, exercise, cleanliness, good habits of eating, sleeping and working, care of food, sanitation and ventilation of the home, furnish subjects for home visits and group instruction; but to practice routinely washing the hands before and after handling food, and after using the toilet; to avoid the common drinking cup or towel; to cover

the mouth in coughing or sneezing; is another matter. Thus to improve living conditions requires the utmost tact, patience and perseverance of the worker. It is too obvious to suggest that the nurse herself should be the exponent of this teaching, also that she protect herself through annual physical examinations and such immunizations as the service demands.

2. The nurse should be familiar with the Sanitary Code of the state and city.

There is considerable variation in the codes of various states and even some in various communities of the same state. These, however, may not be less stringent than that of the state department of health. A glimpse at the variations noted in the chapter on "Control of Communicable Diseases," in *Public Health Bulletin 164,* is most convincing on this point.[8]

3. The nurse should know the symptoms, periods of incubation and isolation, and approved methods of treatment of all common communicable diseases.

Knowledge of symptoms is important as nurses calling in the home on other errands are frequently the first consulted on conditions appearing suspicious. A card diagram giving such data as period of quarantine for patient and non-immunes, as well as other contacts in all of the common contagions, is provided by many states and serves as a helpful reminder.

Some might take exception to the suggestion that the nurse should be informed on approved methods of treatment. The inference that from such knowledge the nurse might proceed to advise treatment and thus invade the province of the physician is of course obvious. Since a large number of families unfortunately never call a doctor, it is very much of a question whether medical advice by the nurse is not justified. Superstitions and unscientific home remedies are all too common and must be combated by urging the acceptance of modern scientific methods.

4. The nurse should be familiar with the nature of the various infectious diseases and their mode of transmission.

This information is indispensable for teaching methods of control, since most diseases are transmitted through personal contact, direct or indirect. The nurse must know how they may be transferred through contact, food, insects, and inoculation.

5. Above all, the nurse should know methods of control through:[9]

Recognition and report	Disinfection
Isolation of patient	Immunization
Quarantine	

Recognition and Report—This requirement again emphasizes the importance of recognizing, especially, early symptoms. New York State puts the responsibility of reporting on the head of a private household or the person in charge of any institution, school, hotel, boarding house, etc. The physician, if present, bears the responsibility for instructing the family in precautions until a representative of the local health department calls. Many of the larger cities employ a diagnostician to verify major and rare contagions, after which the supervision is passed on to the nurse. When an epidemiological card is used it affords an easy and natural means of entrance into the home, and of securing helpful data on source of infection, contacts exposed, and possibilities of quarantine arrangements. When accurately obtained, these data serve as the basis for scientific studies which may add to the knowledge of disease and influence policies for its better control.

Isolation—In the case of a large family, crowded conditions, institutions, hotel, or boarding house, isolation is secured only through hospitalization. This is obtained in coöperation with the family physician or through action of the health officer. The sanitary code usually provides the necessary legal authority to enforce hospitalization if such facilities are available. It is interesting to note from the Report of the Committee on the Relation of Health Departments and Hospitals that health departments are utilizing general hospitals in many communities, the city paying for indigent cases on a per diem basis.[6] However, there will always be instances in every community needing care where no hospital facilities are available, in which case health departments should utilize the visiting nurse. From a review of a number of annual reports of visiting nurse services, it would seem that this custom is increasing; one report showed 14 per cent of all calls made were on communicable diseases. *Public Health Bulletin 164* states that in 1924 many cities did not advise concurrent disinfection except where visiting nurses were permitted to give bedside care.[6]

It is the duty of the official nurse to teach the mother, or other adult assuming responsibility for the care of the patient, the technic involved. The demonstration method is preferred, Pillsbury pointing out that any prophylactic technic to be successfully carried out must (1) appeal to reason, (2) be simple, (3) be adaptable, (4) be economical of time and money, (5) be understood in order for it to be practiced effectively and taught.[7]

Quarantine—The tendency today is to make quarantine more lenient, especially as it affects contacts. New York's code was markedly changed in this direction last July. If the understanding and co-

operation of the public are secured, it will lessen the hardships imposed. The American Public Health Association *Appraisal Form* gives a minimum standard of home visits believed necessary for each disease during the period of quarantine.* The public health nurse makes the ideal quarantine visitor. Her example in technic cannot fail to make an impression on the mother, especially when explained in simple and readily understood terms. When quarantine is broken her understanding of housekeeping, added to her technical knowledge, helps to make individual adjustments more readily than is possible for one without this training.

Disinfection—In teaching disinfection, it is important to know the location of the disease germs, and when and how to destroy them. Most germs are found in the discharges from the body. The daily care of this material as it is discharged is called concurrent disinfection, and instruction for its safe disposal must be very definite as to methods.

For the final or terminal disinfection, instructions are given for the clean-up of the patient and quarters. Most nurses can advise on the bath and shampoo but when it comes to the patient's room they frequently still think of fumigation when all that is required is thorough scrubbing with soap and water, plenty of air and sunlight. The length of time of exposure to sun and air depends on the strength of the sun's rays. Freezing should not be depended upon to destroy germs.

Immunization—Here especially is it necessary for the public health nurse to know the newest practices regarding control and treatment. She does not, of course, advise on treatment in the presence of disease if a doctor is in attendance but it is important that she know of the various vaccines, serums and toxins to answer questions intelligently, and urge immunization.

There is just one other thing that the writer would urge for an adequate alliance between a nursing bureau and all other bureaus requiring nursing services, and that is the adoption of the generalized form of nursing. True, the nurse under this system may lack highly specialized technic, but her broader understanding more than offsets this handicap and she usually enjoys a greater confidence of the people of her district. Furthermore, the ability to swing a large group of experienced workers into the contagious field in the face of an epidemic, or mobilize this group for any other special need, is no minor argument.

Beside all this, the nurse functioning in a generalized plan has an opportunity to arrange for the maintenance of the health of a family without the confusion which is apt to arise when two or more advisers

consult with the mother. Trying to meet all the health and social problems arising in a family is a challenge to the alert nurse, and offers an opportunity to do constructive work of the highest order.

The same set of nurses are on duty at all clinics and health conferences, and follow the children through the school health program. They inspect and supervise child boarding homes. With their knowledge of a family's health and social needs well defined, the generalized nurse does less transferring of information, with less opportunity for confusion in the home.

SUMMARY

The responsibilities and opportunities of a communicable disease nursing service in a health department should be—

1. Teaching personal and home hygiene to the family as a unit.
2. Recognition and reporting of probable communicable disease.
3. Establishment, supervision, and release of quarantine.
4. Propagandizing of accepted immunization procedure.
5. Securing adequate nursing care.

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Malaria

DURING the summer and early fall of 1929, malaria appeared to be more than usually prevalent in many districts from which it had largely disappeared. In parts of Missouri, where malaria has been practically unknown for ten to fifteen years, quite a number of cases have been observed, and the correctness of the diagnosis proved by microscopical examination.

In the *Journal of the American Medical Association* for October 26, 1929, it is stated that focuses of malaria have developed in a number of the central counties of Illinois, and a warning is sounded of an increase for next year. Some fifteen counties in central Illinois have reported cases. It is well known that malaria was formerly quite common in Illinois, but the incidence of the disease had decreased greatly. The interesting feature of these reports is the explanation given by the State Department of Health, which attributes the notable increase to the use of automobiles and the contact with the South through such traffic. This explanation may be true, but we hope that a careful investigation will be made as to whether or not it is correct.

The Administrative Significance of Proposed Changes in Standard Methods of Water Analysis*

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THE primary purpose of *Standard Methods for the Examination of Water and Sewage* is to establish uniform methods for use in public health and other laboratories for testing the potability of water supplies; it also endeavors to furnish laboratory procedures for the control of water purification processes. I hope that a further result has been the stimulation of laboratory workers to improve on the published methods and to devise new and better ones. The standard procedures have also been used for the sanitary examination of swimming pools; for investigations of stream, lake and harbor pollution; and for the analysis of sewages and sewage effluents. Certain of the methods for mineral analysis of water have also been included.

The last (sixth) edition was prepared under the supervision of committees of the Laboratory Section of the American Public Health Association, the American Water Works Association and the American Chemical Society. While the methods recommended are generally regarded as the "Standard Procedures," it is a fact that many laboratories deviate from them to a greater or less degree. In some instances antiquated procedures have been retained; in others, newer ones have been adopted; but in many instances the deviation from Standard Methods has been because of some special local conditions. It is therefore wise to make a periodic survey of the recommended procedures. I shall try to present to you, as briefly as possible, the changes that have been suggested for consideration in preparing the seventh edition, and shall dwell particularly on those that have a direct bearing on administrative control.

It cannot be emphasized too strongly that what I have to say is tentative in character. The changes that will be discussed have not been adopted, and at least a year will elapse before final action on

* Presented at a Joint Session of the Public Health Engineering and Laboratory Sections of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 4, 1929.

any of these proposals can be taken by this Association. There is, therefore, time for further discussion and criticism.

Chemical Methods—No changes are contemplated in the methods intended for sanitary chemical examination. In connection with the mineral analyses, however, numerous suggestions have been made. There appears to be rather general agreement that the "drop-ratio" method for determining the hydrogen ion concentration should be abandoned. It is too crude to be recognized as a standard procedure. Furthermore, there is no necessity for such a method since there are now available excellently prepared buffer standards. In addition to the hydrogen electrode potentiometer method the quinhydrone cell is now available for rapid and fairly accurate work. In the preparation of laboratory mediums, colorimetric methods, if carried out with carefully prepared buffer standards, will probably continue to take precedence.

It has been suggested that a method for the determination of phosphates be included and that a simpler quantitative test for manganese be tried. The method for the quantitative estimation of hydrogen sulphide must also be revised. The present edition gives methods for the separation of sodium and potassium. There is some doubt as to the advisability of including these procedures. Since a complete mineral analysis of a water is somewhat laborious, those interested in water softening processes have devised more rapid although less accurate methods for obtaining the information essential for these processes. It seems that some of these rapid methods might well be recognized as standard procedures. The same is true of those for the detection of chemicals used in water purification, such as alum, ferrous sulphate, soda ash, lime and calcium hypochlorite. The methods would include only those that are recognized as both accurate and practical. A method for the estimation of iodides has also been suggested as of possible value.

Some criticism has been made of the present methods for determining the turbidity of waters. Such a determination is of great value in connection with water filtration. Baylis has suggested that all turbidity measurements be referred to the values obtained with the Jackson turbidimeter.

Sewage Examination—The temperature for drying of solids is now given as 103° C. In water examination, the standard temperature is 180° C. This discrepancy should be removed. Probably 180° C. should be adopted for both materials. The inclusion of methods for the determination of total, fixed and volatile sulphides has been suggested. It is not quite clear whether the analytical procedures

have been sufficiently standardized to include them at this time. A quantitative procedure for the determination of phenols would seem to be an excellent addition to the present methods. There is no doubt that the presence of these substances in water supplies must be taken into account. Several modifications of the method of Gibbs have been investigated, and I believe that agreement on at least a provisional procedure could be obtained. A very desirable but difficult determination is that of settleable solids in sewages. The standardization of some method such as that devised by Imhoff, or some modification of this, might well be recommended. At present there is little uniformity in such determinations.

Microscopic Methods—The present microscopic methods are inadequate. This section of the book must be revised and enlarged. It is well known that higher organisms are of great importance in reservoirs and in connection with the self-purification of streams. A committee has been asked to make revisions but in addition to those on this committee, it is highly desirable that others interested should offer criticisms and suggestions. There is nothing definite to present at present.

Bacteriological Methods—More discussion has centered about these procedures than other sections of "Standard Methods." The referee for the Committee on Standard Methods has prepared a careful report. I shall summarize his proposed changes, omitting, however, some few which concern only minor details. The present method for sterilization of glassware calls for a "temperature of not less than 160° C. for not less than one hour." It is believed by some that this temperature and time, when carefully adhered to, give satisfactory results. Others maintain that the leeway is too small and that a higher temperature, such as 170° C., should be specified. Where the temperature in the oven is known to be uniform throughout, 160° C. might be allowed.

It has been recommended that the instructions for the preparation of nutrient agar should omit the directions to "cool to 45° C. in a cold water bath then warm to 65° C. in the warm bath without stirring." As far as I am aware, this is almost never adhered to and there is little reason for doing it.

Trouble has been encountered in the preparation of Endo medium. It is believed, however, that the directions as given will produce satisfactory results provided certified fuchsin and chemically pure anhydrous sodium sulphite are used. However, an alternative procedure might be considered.

Attention should be called to the water used for dilution of samples

to be plated. Under no conditions is it desirable to use distilled water. No definite suggestions have been offered for a synthetic dilution water, but it is hoped that some will be forthcoming.

Some bacteriologists feel that a simple stain rather than that of Gram should be used for the identification of *B. coli*. This would necessitate a change in the definition now used for the coli-aerogenes group. I have been able to find very little support for this suggestion.

One important item refers to the necessity of obtaining isolated colonies on plates containing either Endo or eosin-methylene-blue medium. The characteristic reaction often fails to appear unless such colonies are obtained, and organisms of the coli-aerogenes group are consequently not reported as required in the partially confirmed and completed tests. Since many laboratories doing routine work do not carry the tests through, it is important to make the partially confirmed test as accurate as feasible. If this suggestion is approved, it will result in an increased number of *B. coli* being reported.

The present edition suggests tests for differentiation of fecal from non-fecal members of the coli-aerogenes group. This section was included because the committees felt that such procedures might be of value to workers in the smaller laboratories who do not have many books available. It was also thought that further work would be stimulated by giving some prominence to the methods. During the past two years, several new mediums have been devised for the differentiation of members of the group, some of which will be discussed later. The section has been criticised because it is not recognized as being included in the standard procedures and the referee acting for the Committee on Standard Methods has recommended its elimination. His recommendation has not been favorably received.

B. coli may be completely killed in a lactose broth medium at the end of 48 hours if the acidity of the medium attains a pH of about 4.2. Accordingly, if the standard procedures are carefully followed, many tubes which contain gas at the end of 48 hours do not give the confirmatory test for *B. coli*. It is therefore recommended that all tubes showing gas at the end of 24 hours should be tested for the presence of the coli-aerogenes group by transferring material to an Endo or eosin-methylene-blue plate. This suggestion was made in the present procedure but was not consistently followed. Another method for accomplishing the same result as far as survival of this group is concerned, would be to add buffer salts to the standard lactose broth. Preliminary work by Butterfield has shown that phosphates might be used for this purpose.

The most important suggestion in connection with the determina-

tion of the coli-aerogenes group organisms has been in connection with the use of a brilliant green bile medium. According to the work of Jordan, Dunham and their collaborators, this medium should contain 2 per cent of bile, with brilliant green in amounts sufficient to give a concentration of 1/75,000. The reaction after sterilization should be between pH 7.1 and 7.4. A very large amount of material has accumulated which indicates the value of this medium both for a primary inoculation in parallel with the standard lactose broth, and as a secondary medium for the partially confirmed test. Opinions on the use of this medium are, however, not unanimous, but it seems that certain definite suggestions could be formulated so as to allow the medium to be used in a way satisfactory to most laboratory workers.

The present edition of *Standard Methods of Water Analysis* suggests one method for reporting the results for the coli-aerogenes group on the basis of numbers per c.c. or per 100 c.c. Much difference of opinion exists as to the best form of calculation for these results. On the one hand there are some who advocate a simple reporting on the basis of number of tubes confirmed for this group. Others advocate a more complex and, possibly, a more mathematically correct procedure. The matter will have to be straightened out through frank discussion.

It has been suggested that the method for preparation of broth mediums be so written that after the addition of the water sample, the medium will be of a uniform composition. This would necessitate the preparation of a more concentrated medium where 10 c.c. portions are to be used, and the use of a definite amount of this medium in each tube. This is a practical suggestion.

The large and well equipped laboratory with experienced workers does not need as definite directions as may be required by the small laboratory and the relatively inexperienced worker. It has, therefore, been suggested that for the examination of finished waters a definite number of portions of given size be used in conformity with the requirements of the U. S. Public Health Service. The following setup of tubes might be recommended—five 10 c.c., one 1 c.c., and one 0.1 c.c. portions.

Standard Methods makes a very definite recommendation in regard to the lens used for counting bacteria. As a matter of fact, this recommendation is rather generally disregarded. Either no lens is used, or some method of lighting and magnification devised in the laboratory, or some commercial apparatus may be at hand. Where a large number of plates are counted each day, the hand lens is unsatisfactory. Agreement should be reached on this point.

During the past two years a number of mediums have been devised for counting coli-aerogenes group organisms by the use of direct plating methods. It is claimed that these will not only give a direct count, but will differentiate fecal from non-fecal strains. While it is recognized that such mediums would be of great value in water examination, their use has not been extended over a wide enough range of laboratory workers to warrant their inclusion in Standard Methods at present.

The Committe on Standard Methods of the Laboratory Section has recommended the inclusion in the next edition, as a supplement, of the report of the "Advisory Committee on Official Water Standards," appointed by the Surgeon General of the U. S. Public Health Service. Their recommendations are known to be the generally accepted standards in this country, and it is felt that it would greatly add to the value of the volume if they could be included. Permission from the Surgeon General is being requested in order to carry out this recommendation.

Swimming Pools—With the development of adequate methods for the purification of swimming pool water it has been necessary for the laboratory to examine specimens at frequent intervals as a control on the operating procedures. It is recommended that methods for the examination of water be used also for the examination of swimming pools with the understanding that the portions used for analysis be varied according to the extent of purification. No attempt would be made to suggest standards for interpretation of the results, since they are not considered pertinent to the other laboratory procedures described. Methods for the examination of swimming pools for respiratory organisms must await further work.

SUMMARY

I have attempted to enumerate the most important suggestions that have been made for changes in the present edition of *Standard Methods for the Examination of Water and Sewage*. These changes have for their object the inclusion of additional methods for the Chemical Analysis of Water and Sewage so as to increase the usefulness of the book. Such proposed additions include rapid methods for boiler water analysis, the determination of phenols in water and sewage and the analysis of chemicals used in water purification.

The proposed changes in the bacteriologic methods are made with the object of simplifying the control of plant operation by laboratory methods, including the recognition of the fact that such methods must be distinct from those used for the final analysis of a finished water.

The plant manager at present is inclined to use methods other than those regarded as standard, because they have not proved practical from his standpoint.

The proposed changes in the bacteriologic methods will tend to increase the number of positive presumptive tests partially confirmed and completed. These results can be accomplished by more careful attention to some of the details in the procedures.

Milbank Memorial Fund Demonstrations

MARKED reductions in deaths from preventable causes have occurred in demonstration communities where the Milbank Memorial Fund is spending $2,000,000 in public health promotion.

The 1928 death rate from tuberculosis in one of the communities, rural Cattaraugus County in New York State, is reported as the lowest on record in that county—39.1 per 100,000 population. This is the fourth successive year in which the death rate from this disease has been below any annual rate prior to the inauguration of the demonstrations.

Over the past four years, fewer deaths from diphtheria have been reported from Syracuse, another of the demonstration communities, than at any time during the recorded history of the disease in that city, which reaches back over the past 29 years.

New York Health Demonstrations were begun in 1923, the Fund having made appropriations to supplement the resources of public and private health agencies in three demonstration localities in New York State, in order to help them develop locally effective and adequate public health administrative machinery. In addition to the rural Cattaraugus County and the urban Syracuse demonstrations, a third is in progress in the metropolitan Bellevue-Yorkville district of New York City.

It is estimated that a reduction of over 40 per cent in diphtheria cases among children of school age resulted from the prevention campaign carried on in Syracuse. A reduction of 39 per cent in a similar group is attributed to the immunization campaign in Cattaraugus County. In the latter demonstration center, over 60 per cent of the population in the ages 6 to 11 have been given the preventive treatments for diphtheria.

In the Bellevue-Yorkville Health Demonstration in New York City, progress has been notable in the administration of toxin-antitoxin to the children of the district; in the development of a program of health education and of a tuberculosis consultation service; and in forwarding a campaign for regular and more intensive physical examination of school children.

While in its twenty-four years of activity the Fund has made substantial grants for the advancement of social welfare and general education and, to a lesser degree, for charitable relief, considerably over half of its income has been devoted to the promotion of public or community health—to aid in the acquisition and application of knowledge and methods for improving the health and vitality of people. The Fund has coöperated in many such enterprises other than the New York Health Demonstrations—some of them in remote parts of the world, but the majority in the United States, and particularly in the City and State of New York.

Annual Health Department Reports*

THE committee has given its chief consideration this year to the kind and form of tables which should be presented in the annual health department report. These tables are mainly related to vital statistics and communicable diseases, although certain other tables are believed to be desirable. It is believed by the committee that somewhat more detailed historical statistical tables should be presented once in 5 years than is necessary every year, and a subsequent report will suggest quinquennial tables for this purpose.

The health department report is usually prepared for the health officer, the press, city officials, civic leaders, schools, libraries, and for exchange with other agencies. The report serves as a city record as well as for the health officer's purpose of "taking account of stock." The statistical information contained in the report is the fuel of the epidemiologist. The value of the report depends in no small degree upon the early availability of this material for research work and program planning.

Every annual report, regardless of the size of the community, should contain tables showing the births, deaths, stillbirths and marriages, together with the population for the past 10 years. These might also include infant deaths and infant mortality rates.

TABLE I

POPULATION, BIRTHS, DEATHS, MARRIAGES, WITH RATES

Year	*Population* Est. July 1	*Births* (still-births excepted)		*Deaths* (still-births excepted)		*Stillbirths*		*Marriages*	
		Total	Per 1,000 Population	Total	Per 1,000 Population	Total	Per 1,000 Births	Total	Per 1,000 Population
1920									
1921									
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929									

For quinquennial reports, which may be prepared in greater detail

* Report of Sub-Committee on Annual Health Department Reports of the Committee on Administrative Practice of the American Public Health Association, May 28, approved December 5, 1929.

and with more comparative data, it is suggested that the above table be modified to give data for each census year, for as long a period as such data are available, preceding the quinquennial period of the report. It is desirable that all statistical tables be accompanied by sufficient descriptive text to render the data clear and interesting.

Births should be classified, as in Table II, and it is suggested that a legitimacy column may also be added.

TABLE II

BIRTHS, BY SEASON, SEX, COLOR, AND KIND OF OBSTETRICAL CARE

Months	*Males*	*Females*	*Total*	*Colored Children Included in Preceding*		
				Males	Females	Total
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Obstetrical Care	*Number*	*Per cent*
Hospital		
Home, private		
Home, clinic		
Midwife		
Total		

If it is desired to correlate the kind of obstetrical care with parentage of mother, the following is suggested:

Obstetrical Care	*Color and Nativity*		*Parentage*				
	Native White	Foreign Born White	Negro	English	Irish	Italian	Portuguese, etc.
Hospital							
Home, private							
Home, clinic							
Midwife							
Total							

Table III classifies deaths by sex, cause and age. This is the largest table in the report and may be used for all communities of over 25,000 population. If more than 10 per cent of the population are colored, another table might be made for this group.

TABLE III

DEATHS CLASSIFIED BY SEX, BY AGE AND BY CAUSE
EXCLUSIVE OF STILLBIRTHS

Cause of Death	All Ages	Under 1 year	1	2	3	4	5–9	10–14	15–19	20–24	25–29
All Causes Total											
Male											
Female											
Typhoid Fever	125 { M. 75 F. 50										
Measles (etc.)	4 { M. 2 F. 2										
(Causes which show no deaths for the year may be omitted)											

Cause of Death	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80 and over
All Causes Total											
Male											
Female											
Typhoid Fever											
Measles (etc.)											
(Causes which show no deaths for the year may be omitted)											

It is suggested that Table IV classify deaths by causes and months of the year, using essentially the abridged *International List of Causes of Deaths*, as in the Providence report, page 5, 1926.

TABLE IV

DEATHS, 19—, SEASON AND CAUSE

Cause	January	February	March	April	May	June	July	August	September	October	November	December	Year
1. Typhoid Fever					1		1						2
5. Malaria													
6. Smallpox													
7. Measles	19	10	17	6	4	5	2						63
8. (etc.)													
Totals													

Deaths under 1 year should be classified by cause and age. Season and color may be likewise included if desired.

TABLE V

DEATHS UNDER 1 YEAR BY CAUSE AND AGE, 19—

No.	Cause	Under 1 Day	1 Day and under 2 Days	2 Days and under 3 Days	3 Days and under 4 Days	4 Days and under 5 Days	5 Days and under 6 Days	6 Days and under 7 Days	7 Days and under 8 Days
7	Measles								
9	Whooping Cough								
10	Diphtheria								
	(etc.)								
	Totals								

No.	Cause	1 Week and under 2 Weeks	2 Weeks and under 3 Weeks	3 Weeks and under 1 Month	1 Month and under 2 Months	2 Months and under 3 Months	3 Months and under 6 Months	6 Months and under 9 Months	9 Months and under 1 Year	Total under 1 Year
7	Measles							6	10	16
9	Whooping Cough			1	2	2	8	9	7	29
10	Diphtheria					1				1
	(etc.)									
	Totals									

A table showing deaths under 1 year of age according to the nativity of the mother may be used for larger cities, and should be included in quinquennial reports. A table showing puerperal deaths by cause and obstetrical care, with the age and mother's nativity, is desirable although not always essential.

For the tabulation of cases and deaths of reportable diseases, the committee suggests the use of the table adopted by New York State.

A table should be included to indicate the hospitalization of communicable diseases and Table VII carries suggestions.

The final table should be a classified financial statement for the year of the report. Comparisons with the previous year may be used

TABLE VI

REPORTABLE DISEASES: CASES AND DEATHS BY MONTHS, AND ANNUAL CASE, DEATH, AND FATALITY RATES, 19—

Int. List Nos. (Third Revision, 1920)	Causes of Sickness and Death (Listed in order of New York State Sanitary Code)	Total					Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.	
				Rates*																										
		Cases	Deaths	Case	Death	Fatality	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
27	Anthrax																													
175	Botulism †																													
25	Chickenpox †																													
14	Cholera (Asiatic)																													
10	Diphtheria (membranous croup)																													
16	Dysentery (amebic and bacillary) †																													
23	Epidemic encephalitis																													
24	Epidemic cerebrospinal meningitis																													
11	Epidemic influenza																													
109	Epidemic or streptococcus (septic) sore throat †																													
21	Erysipelas																													
25	German measles †																													
26	Glanders																													
5	Malaria																													
7	Measles																													
13	Mumps																													
40	Ophthalmia neonatorum (suppurative conjunctivitis of the newborn) †																													
1	Paratyphoid fever †																													
17	Plague																													
100, 101	Pneumonia																													
100	Broncho or lobular																													
101	Acute lobar																													
22	Poliomyelitis, acute anterior (infantile paralysis)																													
46	Puerperal septicemia																													
28	Rabies																													
8	Scarlet fever																													
6	Smallpox																													
29	Tetanus																													
85	Trachoma †																													
31–37	Tuberculosis, pulmonary																													
	" other forms																													
1	Typhoid fever (except paratyphoid) †																													
2	Typhus fever																													
109	Vincent's angina †																													
9	Whooping cough																													
38	Syphilis																													
40	Gonorrhea †																													
39	Chancroid																													

* Rates per 100,000 population, except fatality rate which is the number of deaths per 100 reported cases. Fatality rates almost certainly overstate the virulence of a disease since usually not all cases are reported.

† This title includes only the disease named, not all that are classified under the *International List* number given.

TABLE VII

CASES OF COMMUNICABLE DISEASES HOSPITALIZED

Diseases	*City Cases*	*Number Removed to Hospital*	*Per cent*
Diphtheria			
Scarlet fever			
Measles			
Smallpox			
Typhoid fever			
Poliomyelitis			
Cerebro-spinal meningitis			
etc.			

in place of the cents per capita column in Table VIII.

TABLE VIII

SUGGESTED FORM OF FINANCIAL STATEMENT*

For the year ending December 31, 1927

Receipts	Total	Cents per capita
1. Appropriations, salaries	$171,190	171.2
2. Other expenses	25,000	25.0
3. Nursing fees	15,210	15.2
4. Communicable disease hospital	20,000	20.0
5. Miscellaneous receipts	900	00.9
	$232,300	232.3

Expenditures	Salaries	Maintenance	Total	Cents per capita
1. Administration				
A. Administration	$11,000	$2,500	$13,500	13.5
B. Public Health Education	2,200	2,000	4,200	4.2
2. Vital Statistics	4,000	500	4,500	4.5
3. Communicable Disease Control				
A. Epidemiology	6,800	2,000	8,800	8.8
B. Tuberculosis	6,400	1,500	7,900	7.9
C. Venereal Diseases	6,400	2,500	8,900	8.9
4. Child Hygiene				
A. Maternity, Infant and Preschool Hygiene	9,000	1,500	10,500	10.5
B. School Hygiene	20,500	2,000	22,500	22.5

(In like manner, list other activities: Sanitation, Food and Milk, Laboratory, Public Health Nursing, etc.)

* Figures from Summary Budget Revised Plan of Health Organization for City of 100,000 Population. *Community Health Organization*, A. P. H. A., 1927.

A supplementary statement of official expenses for public health not included in the health department budget, such as vital statistics or hospitalization, should be added. Activities listed which are not strictly public health measures should be starred.

In addition to the above tables, summary tables of inspection, nursing, laboratory, medical and clinic activities should be presented with appropriate descriptive text. Subsequent reports of the committee will outline such tables in greater detail.

* Rates per 100,000 population, except fatality rate which is the number of deaths per 100 reported cases. Fatality rates almost certainly overstate the virulence of a disease since usually not all cases are reported.
† Use title including only the diseases named, not all that are classified under the *International List* number given.

It is recognized that the publication of statistical tables is expensive, and for this reason some health departments, including Providence, R. I., have utilized zinc cuts from typewritten proofs, with resulting material savings.*

SUGGESTED CHARTS FOR ANNUAL OR QUINQUENNIAL REPORTS

1. Organization chart of department
2. Trend of population
3. Trend of expenditures
4. Birth rate
5. Infant mortality rate
6. Death rate (all causes)
7. Death rates from the 5 or 10 locally principal causes of death

PHYSICAL MAKE-UP

Size—The size should be convenient for reading and filing, preferably 6″ x 9″, allowing about 3¾″ x 6½″ for the printed page.

Paper—Good paper, adapted to the character of the report, preferably without a glossy finish, is recommended. Coated paper is distressing and is used only because it takes half tones easily. If this must be used, dull coated paper is preferable, but if there are no half tones, coated paper should not be used.

Type—The choice of type is obviously an important question, and in general it is well to stick to a few standard faces on which there is no possibility of going wrong. A reliable printer is highly desirable. Legibility is dependent principally on the length of line in relation to type used and the space between the lines. Ten point should be set not wider than 4 inches; and 8 point not wider than 3 inches. Ten point type, if properly used, is sufficiently large for effectiveness in city reports.

Appraisal Form—Several health officers have effectively introduced into their reports the *Appraisal Form* schedule of the Committee on Administrative Practice of the American Public Health Association. Even if a rating is not made on the *Appraisal Form*, the questionnaire portion of the publication is useful as an outline of data to be included in a report.

Literary Style—The text should be clear and concise, reflecting proper attention to grammar, sentence structure, and diction.

Balanced Content—The material should show a complete picture, and each activity should occupy space in proportion to its relative importance.

C. V. CHAPIN, *Chairman*,
J. A. DOULL,
IRA V. HISCOCK,
W. F. WALKER, *Secretary*.

* From a typewritten copy of the table, a line cut one-half size is made, saving in labor and proof reading. Care must be taken to use a good, clean ribbon and to have the typewriter itself well cleaned. Choice of type is important as the reduction is the same in thickness of lines as in size of letters. Tables III, IV, V, and VI may be made by this method.

Seasonal and Age Studies of Poliomyelitis and What They Suggest*

W. LLOYD AYCOCK

Harvard Medical School, Boston, Mass., and the Research Laboratory of the Vermont Department of Health, Burlington, Vt.

A PREVIOUS study of the age distribution of poliomyelitis in comparison with that of measles and diphtheria,[1] in which diseases the phenomenons responsible for age distribution can be measured by direct observation or test, indicated that the virus of poliomyelitis is widespread and that it sets up a widespread immunity to the disease. It was concluded that the incidence of the disease is not in reality a measure of the extent of the distribution of its virus but is limited to a great extent by existing immunity which must have come from previous exposure to the virus.

This observation raised the question as to what determines the result of initial exposure to the virus—the frequency with which it causes an actual attack of the disease or produces (or at least begins) a subclinical immunization which may or may not be reinforced by subsequent exposures. While this study suggested that the frequency of the occurrence of the disease was not a function of facility of contact, it gave no indication as to whether immunization or disease is the result of some quality of the virus in respect to dose or virulence, or of some quality of resistance on the part of the host.

In a second study[2] evidence was presented which indicated that the extent of the distribution of the virus is the same in warmer climates, where the incidence of the clinical disease is less, as in cooler climates where the disease has its greatest incidence. An analysis of variation in incidence together with seasonal fluctuation in cooler and warmer climates indicated that the climatic variations could hardly be attributed to corresponding variations in the facility with which the virus is transmitted or in its virulence. It was shown, however, that the seasonal fluctuation, as well as the incidence, correlated with the extent of seasonal fluctuations in climate but not with climate itself. In other words, poliomyelitis is a disease of warmer seasons

* Read before the Epidemiology Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 3, 1929.

but of cooler climates, its incidence, generally speaking, varying directly with the magnitude of the change from the colder to the warmer season of the year, but not with the warmth of the climate itself.

It is known that numerous bodily functions undergo corresponding seasonal fluctuations doubtless in the nature of normal adjustments of the body to a varying environment. It was pointed out that some of these seasonal fluctuations in physiologic functions bear a direct relation to the occurrence of certain noninfectious diseases; to susceptibility to certain chemical compounds, the toxicity of which depends on the rate at which they are broken down in the body into their poisonous constituents, and which rate varies with the seasonal activity of certain bodily functions; and that susceptibility to certain infections is influenced by physiologic factors which undoubtedly undergo similar seasonal variations.

This study led to the opinion that resistance to poliomyelitis in the first instance may lie in a balance between some as yet undetermined physiologic processes which undergo seasonal fluctuations and vary in different climates by way of adjustment of the body to different or changing environment. Failure of the seasonal adjustment would result in a deficiency or discrepancy which would be greater in cooler climates where fluctuation in the seasons is greatest, and least in warmer climates where fluctuation is least. It was pointed out that certain observations regarding the type of individual in whom the disease seems to occur with greater frequency than in the average, a type suggesting some physiologic imbalance, tended to support this hypothesis.

In order to define more clearly this kind of resistance to disease as a matter of convenience; to distinguish it from immunity (i.e., resistance which arises as a reaction product between the infecting agent and the host) as well as to call attention more sharply to a form of resistance which since the advent of the germ theory of disease has, I believe, been neglected; I have suggested that it be designated by the term "autarcesis," which may be defined as the power to resist infection which resides within the individual's normal physiologic functions and which does not require the provocation of the infectious agent for its production.

From this conception of the epidemiology of poliomyelitis some idea of the nature of the virus reservoir of the disease can be formed which is in accord with other observations which need not be enumerated here. Furthermore, from an analysis of some of the general features of the disease some notion may be gained of the probable behavior of this virus reservoir which cannot be ascertained with the

limited facilities available for the actual detection of the virus. This question has long been before students. Where does the virus maintain itself in areas where, and at times when, the disease is highly prevalent, in interepidemic periods, in areas where the incidence of the disease gives no hint of its presence other than the occurrence of sporadic cases, or more or less widely spaced outbreaks, and in the winter and spring when its presence is indicated only by occasional cases?

I have previously pointed out that we need not look for any condition peculiar to any one area which would serve as a virus reservoir. This is obvious from the simple fact that no part of the inhabited world is entirely free of the disease, and is further emphasized by the fact that regardless of the incidence its age distribution indicates an equally widespread immunization and, hence, an equally widespread distribution of the virus in all parts of the world from which figures are available.*

Since the widespread process of immunization which has been referred to apparently takes place with a rapidity corresponding to concentration of population, as is the case with such well known contact diseases as measles and diphtheria, it seems reasonably certain that the mode of dissemination of the virus of poliomyelitis is likewise by direct person to person contact. No evidence has been found that the virus reservoir may lie largely in chronic carriers. No instances are known where one individual seems to have been responsible for the transmission of the virus to any number of others over a considerable length of time. It would rather appear that the virus reservoir is in reality the upper respiratory passage of large numbers of individuals who, so far as the evidence indicates, harbor the virus for a relatively short time during which by far the largest proportion acquire an immunity without showing obvious signs of the disease. It is still a question as to what proportion of individuals may show mild symptoms following an infestation, known as abortive poliomyelitis, or what proportion of them become immunized without any noticeable reaction to the virus.

There is no positive indication that the virus of poliomyelitis can actually be transmitted with greater facility at one season than another. In fact, we now see that increased opportunities for contact due to closer aggregation of the population in winter, long supposed to be responsible for the seasonal prevalence of the common contact diseases, can hardly be the true explanation. If this were true one

* There is only one probable instance of the introduction of the virus into a virgin population. On the island of Nauru, in 1910, the disease reached a very high incidence and apparently occurred with equal frequency at all ages.

seasonal curve should be common to all these diseases; and the seasonal curve of none of the contact diseases has been shown to coincide with variations in the aggregation of population. For example, the seasonal increase in diphtheria long supposed to follow the opening of schools, actually is on the upward trend before the opening of schools. Finally, it remains to be shown that the magnitude of seasonal variation in "opportunities for contact" even begins to approach the seasonal variations in the prevalence of these diseases.

In view of previous studies mentioned, which suggest an autarcetic factor which varies with season, one can at least raise the question whether an initial infestation with the virus of the disease produces the clinical disease or an immunity, largely according to the season of the year when infestation takes place. In this connection it may be stated that while mild cases are not infrequently detected, solely by reason of their proximity to frank cases, we have not found evidence that any considerable number of such mild febrile attacks, which might be regarded as abortive poliomyelitis, occur as an undercurrent of summer outbreaks of the frank disease. However, the evidence in regard to the age distribution indicates that the large majority of the population acquires an immunity in the course of a life time. This would imply that infestation with the virus is correspondingly widespread, from which it may be inferred that, on the average, approximately 1 out of 50 of the population receives an initial exposure each year, or 1 out of 600 of the population in any given month.

In the hypothetical case of a city of 100,000, shown in Figure I, approximately 166 initial exposures would occur each month. It might well be supposed that the virus of poliomyelitis might be spreading with equal rapidity throughout the year, but that during the winter and spring months by far the vast majority of initial exposures would produce no symptoms, or some mild reaction not recognized as poliomyelitis; while as the summer season arrived, on account of a general diminution in autarcesis, a larger and larger proportion of infestations would result in attacks of the recognizable disease rather than in a mild reaction which would pass unnoticed.

In the hypothetical case illustrated, it will be seen that an epidemic of an intensity which is seldom exceeded (2 cases per 1,000 population) could occur in the summer season without any actual increase in the rate of dissemination of the virus. It is not to be understood that this moving virus reservoir is necessarily present in every locality all the while. Local epidemics may follow its introduction or presence during the season of anautarcesis (summer and fall), or if a particular locality has been visited by the moving reservoir during the

season of autarcesis (winter and spring) a wave of immunization would result which would render that community relatively free of the disease for a time. Of course many communities may pass through

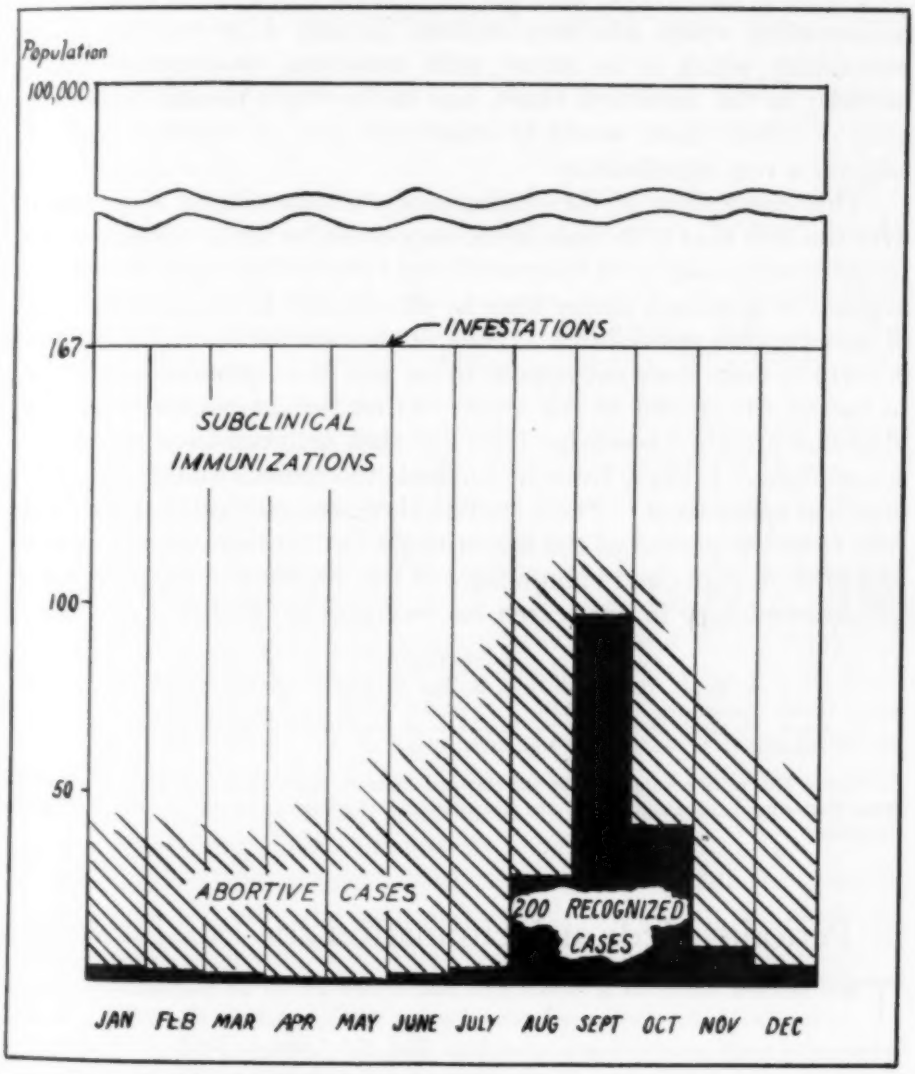

FIGURE I—This represents a hypothetical community of 100,000, in which initial infestations with the virus of poliomyelitis take place with an even frequency throughout the year, and in sufficient numbers to "saturate" the population in the course of an average lifetime of 50 years. ($1/50 \times 100{,}000 \times 1/12 = 167$ infestations per month.) This implied rate of dissemination is sufficiently rapid to bring about a practically universal immunization.

The solid area on the chart shows the occurrence of a severe epidemic (2 cases per 1,000 population) of recognizable cases which could occur without any increase in the rate of dissemination of the virus. The remainder of the supposedly uniform number of infestations represents, in unknown proportions, subclinical immunizations or abortive attacks.

the summer season when the virus reservoir happens not to be present and remain free of an outbreak, but at the same time there would be an accumulation in the number of non-immunes.

I wish it understood that the conception of the virus reservoir of poliomyelitis which has been outlined is only a probability, but a probability which is in accord with numerous observations at the bedside, on the statistical chart, and in the experimental laboratory, none of which alone would be conclusive, but all together begin to take on a real significance.

This conception of the epidemiology of the disease is presented with the idea that if its validity be supported by further observations, future studies looking to its control could proceed along more clear-cut avenues of approach rather than by chance and laborious exploration of innumerable possibilities. Thus, if this idea of the virus reservoir is correct, there does not appear to be any great promise in attempts to curtail the spread of the virus. From the experimental point of view our present knowledge indicates that artificial immunization, if accomplished, is likely to be by methods too tedious and uncertain for practical application. These studies, therefore, suggest that we should turn from the pursuit of the bacteriology (if this term may be applied to a virus disease) and immunology of the disease to an exploration of its autarcesiology in our search for means of prevention.

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NOTE: This work is supported by the Harvard Infantile Paralysis Commission, the Vermont State Department of Health, and the International Committee for the Study of Infantile Paralysis.

Periodic Medical Examination for Bus Drivers

THE sudden illness of a motor omnibus driver led to an accident which only fortunate chance prevented from having fatal results. The possible consequences of such accidents are so serious that the London *Daily Mail* advocates precautions against them. The example of the railways, where drivers are subjected to a searching medical test on appointment, and annually thereafter, is an admirable one. Something of the kind is already done by the London General Omnibus Company, which at least examines its new drivers and insists on a fresh test before a man who has been seriously ill returns to work. But not all the smaller proprietors are quite so careful. The *Daily Mail* advocates a systematic medical test, repeated at regular intervals, for every driver of a public conveyance. Our contemporary might have gone further and advocated the regular medical examination of all drivers of automobiles, public or private.—*Diplomate*, Sept., 1929.

Standardization of the Wassermann Test*

IN 1928, an investigation of some of the more widely used precipitation or flocculation tests was undertaken, since a study of the complement-fixation test did not seem complete without a determination of the comparative value of these fundamentally similar reactions which are being more and more employed as an aid in the diagnosis of syphilis. During 1929, it has been possible to make a more comprehensive comparison of certain of these tests, namely, the Kahn—both the routine and presumptive procedures—the Kline slide test, the Sachs-Georgi reaction, Müller's Ballungsreaktion, Meinicke's Trübungsreaktion, and to a slight extent his Klärungsreaktion.

The routine Kahn precipitation test was studied the most extensively, having been compared with complement-fixation in the examination of 10,455 specimens. The results obtained agreed approximately with those of the test with the cholesterolized antigen in 9,088 instances, or 86.9 per cent. Of the specimens which gave disagreeing results, nearly fifteen times as many reacted more definitely in the test with the cholesterolized antigen than in the Kahn, a large proportion not reacting at all in the latter. The majority of these specimens were from treated cases of syphilis.

Our observation on the relative value of these two tests is in accord with the results obtained in 1926 when Kahn, in coöperation with seven other serologists, tested a series of 252 specimens from persons who had been given careful clinical observation.

The routine Kahn proved slightly more sensitive than the complement-fixation test with the acetone-insoluble antigen in the examination of the series of 10,455 specimens. The majority of the disagreeing reactions, as with the cholesterolized antigen, occurred with serums from treated cases of syphilis.

As the routine Kahn test is slightly more sensitive than that with the noncholesterolized antigen, and entirely different reagents and apparatus are used in it, this precipitation test, or another of corresponding value, might furnish a more satisfactory control for the complement-fixation test with the cholesterolized antigen than does the one with the non-cholesterolized antigen.

* Abstract of Progress Report, presented to the Laboratory Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 1, 1929.

Kahn's presumptive precipitation procedure was compared with the routine Kahn procedure and with the complement-fixation test with the cholesterolized antigen in examining 1,668 specimens. The results indicate that the presumptive test, although more sensitive than the routine Kahn, is, nevertheless, not so sensitive as the complement-fixation test with which it was compared.

The results with the Kline slide test, Müller's Ballungsreaktion, and the Meinicke Klärungsreaktion were closely in accord with those obtained with the routine Kahn. Results with the Sachs-Georgi test indicated the procedure to be less sensitive than the others studied. The Meinicke Trübungsreaktion did not give satisfactory results in our hands. This may have been due to the use of inactive rather than active serums.

While the investigation made for the Committee on Standard Methods has demonstrated the superiority of the complement-fixation test over the precipitation tests studied, the results obtained with complement-fixation made during the League of Nations Conference in 1928 were, on the whole, much less satisfactory than those reported with the flocculation tests. The methods represented at the Conference, however, failed to incorporate certain procedures that have been found to insure accuracy of results. It may be judged, therefore, that less attention has been given during recent years to the development of the sensitivity of the complement-fixation test abroad than in this country. Not only was there failure to secure reactions with many specimens from cases of syphilis, but, with the exception of two procedures, definite reactions were obtained with specimens from persons without history or symptoms of syphilis. The results with the two methods of complement fixation which gave the most satisfactory reactions were comparable to those secured at the Conference with the Sachs-Georgi test, and were much less accurate than those obtained there with the Müller and Kahn precipitation tests. As the latter has been shown repeatedly to give fewer reactions with specimens from cases of syphilis than a sensitive complement-fixation test, one is forcibly impressed with the need for its standardization, with the incorporation of the procedures found to give the most satisfactory results. If it does not seem feasible at present to recommend for adoption any one method *in toto*, agreement on essentials might be secured.

RUTH GILBERT, M.D., *Referee*

EDITORIAL SECTION

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VENTILATION AND COMFORT

WITH the discovery of more fundamental facts—through the substitution of research investigation for opinion—and a study of the essential factors concerned in the problem of ventilation, progress in air conditioning and air distribution has been phenomenal. A logical standard of ventilation can be determined only by accurate measurements of human comfort and efficiency.

The belief advanced some sixty years ago that the object of ventilation was the removal by dilution with fresh air of organic poisons excreted into the atmosphere from human bodies, is of interest today only because this idea still exists in the minds of some of the laity. The investigations at Breslau, by Flügge and his associates, later confirmed by Hill and Haldane in England, and by Benedict and the New York State Commission on Ventilation in the United States, have shown that human occupancy is insufficient noticeably to change the chemical proportions of the constituents of air.

It is recognized that the most important factor in determining the fitness of air, in the absence of some contaminating source carrying harmful dusts, gases and disease producing organisms, is the maintenance of the physical conditions of the air which favor the normal loss of body heat. By the physical conditions of the air is meant its temperature, moisture content and rate of movement. This conception in its early stages led to overemphasis of one or another of these three physical factors as the most accurate index of comfort. The dry bulb temperature of the air, that is, the temperature indicated by an ordinary thermometer which measures the average effect or intensity of the heat, was assumed at first to be the all important

factor in determining one's feeling of comfort. A dry bulb temperature of 70° was offered as a standard. Later, the reverse was true, and a wet bulb temperature of 56° without reference to the other factors was favored as a more correct index. The wet bulb temperature can be determined from the ordinary thermometer by covering the bulb with a moistened wick, and passing air rapidly over it either by whirling or by means of a small fan. The reading of the thermometer indicates the degree of moistness of the air. Then followed the view that the dew point, or the temperature of the atmosphere at which the moisture begins to be deposited as dew, rather than the wet bulb, was more accurate.

The results of further investigations, principally those conducted jointly by the U. S. Bureau of Mines, the U. S. Public Health Service, and the Research Laboratory of the American Society of Heating and Ventilating Engineers, present evidence establishing the influence on human comfort of all three factors—dry bulb temperature, wet bulb temperature and air movement. This later study has demonstrated the physiological changes which take place in the body, and indicated the length of time human beings can tolerate the various combinations of these physical qualities of the air. Temperature conditions at which fans are desirable are indicated; also when fans will no longer mitigate the heat, and finally when an increase in air currents may even exaggerate the discomfort.

While no single instrument has yet been devised to indicate the comfort of a given atmospheric condition, the above study has developed a single index of expression, by means of what has been called the "effective temperature scale," for the degree of warmth experienced by individuals for equivalent atmospheric conditions. The effective temperature scale was established by experiments with human subjects, and measures the resultant effects of the dry bulb temperature, the wet bulb temperature and the velocity of air on the human senses. Within this scale a zone of comfort has been determined, thus indicating various combinations of the physical factors of air giving uniform feelings of comfort.

Our present knowledge of the problems of ventilation therefore seems to justify the acceptance, as a standard, of the following requirements: The attainment and maintenance of an atmospheric condition in every part of a room occupied by human beings that is free from an excess of dust, disease producing organisms, unpleasant odors and poisons, with suitable air movement, and at a temperature and humidity shown within the comfort zone between 63° and 71° F. effective temperature.

A NEW USE FOR THE MALARIAL PARASITE

THE antagonisms which exist between certain diseases have been observed over a long period of time. We believe that the artificial inoculation with the malarial parasite in the treatment of late syphilis by Wagner-Jauregg was the first instance in which infection with one disease was used to cure another, though the attempted cure of certain tumors by inoculation with the streptococcus or its products is a matter of record.

The most recent development is the use of artificial infection with the malarial organism for the cure of gonorrhea. An observation made in Acre[1] tends to show that in Palestine cases of gonorrhea following a previous infection with malaria cleared up more quickly than usual. The high temperature in malarial attacks is credited with having a beneficial effect, and other similar instances have been recorded.

The Lancet[2] calls our attention to the fact that John Hunter a century ago observed "the suspension or cure of a gonorrhea by fevers." It is also stated that during the past five years several German practitioners have used malarial inoculation with success in the treatment of gonorrhea in adult females.

The average number of days in the hospital in cases of military gonorrhea is said to be 55.7 in England, 51.33 in India, and 46.7 in West Africa where the incidence of malaria is high. It is further stated in the report referred to that neurosyphilis is much more prevalent in tropical towns than in the villages of the same country, probably on account of the greater prevalence of malaria in the villages, approximately 70 per cent of the inhabitants being infected; whereas in the towns, preventive measures and drainage have cut down the incidence of the disease.

These reports are exceedingly interesting in themselves, but have an important bearing on the future health of tropical countries, since there seems to be there, as elsewhere, a drift of the inhabitants from the country to the cities.

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THE DOCTOR'S INCOME AND PREVENTIVE MEDICINE

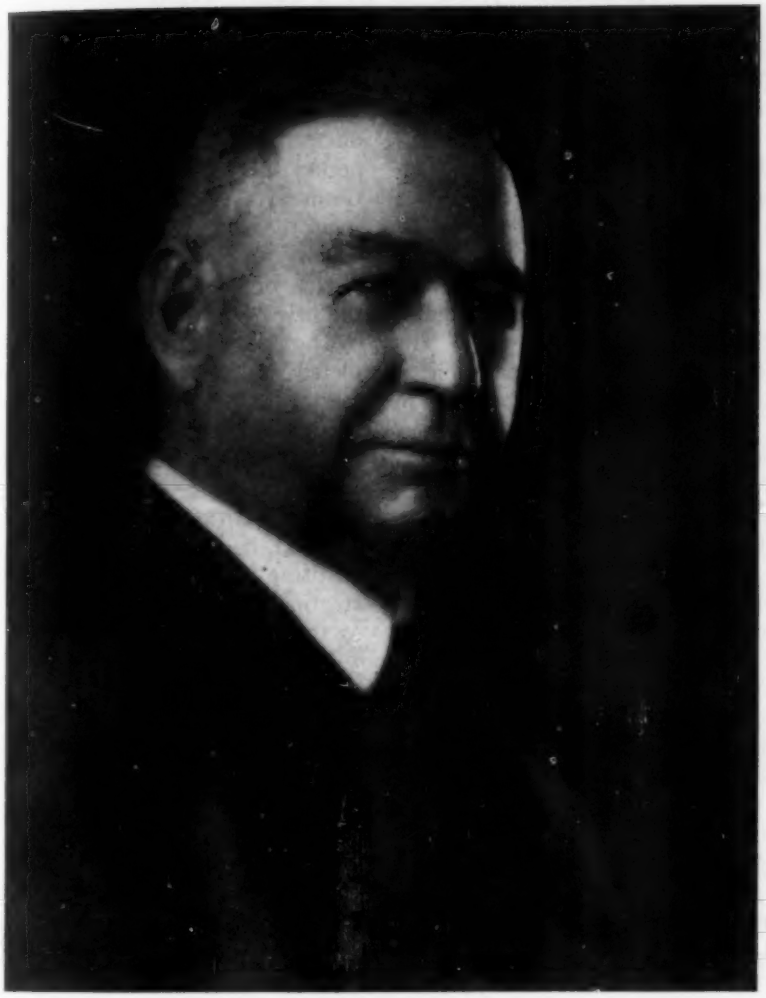
FROM time to time the question is raised as to what effect the extensive program of preventive medicine that is developing in many parts of the country will have on the income of the practicing physicians.

The falling death and morbidity rates in all parts of the country compel recognition of the fact that this question has rather than academic significance. Thinking persons realize that the practice of medicine is no more a static condition than any other human relationship. In the evolution of social adjustments, the means and mechanism of furnishing necessary human service must be modified to meet changing conditions.

The shrewd horse trader long ago sold his livery stable and bought a garage. The physician of the kerosene era obtained a large part of his income from the treatment of diphtheria and infantile diarrhea. While preventive medicine has reduced the physician's income from both these sources almost to the vanishing point, the physician of the gasoline age has more practice of a far better kind.

The mathematical demonstration of this statement may be presented with available figures. The last year for which figures on diphtheria rates of the various states of this country are obtainable is 1927. In that year there were 82 cases of diphtheria reported in the State of Michigan for each 100,000 population. A comparison of incomes to the physicians between fees received for the treatment of cases and those paid for the immunization of babies reveals that even where the disease has the above unusual prevalence, preventive medicine is as productive financially as curative medicine. The income from treating 82 cases at $50 each would be $4,100. Among each 100,000 population in the State of Michigan in 1927, there were 2,200 babies born. If each of these babies had been immunized at only $3 each, the income from this practice in 100,000 population would have been $6,600.

It is also to be noted that these data predicate only the immunization of the new-born, or an equivalent number of persons in the community. There are of course four times as many preschool children as babies, and ten times as many school children. The opportunity for increasing practice by carrying on immunization among the preschool and school populations in the physician's clientele offers an almost unlimited field.



VICTOR CLARENCE VAUGHAN

October 27, 1851 — November 21, 1929

THE death, on November 21, 1929, of Victor Clarence Vaughan, M.D., has deprived American medicine and public health of its foremost leader. He was born on October 27, 1851, at Mount Airy, Mo. From 1874 until his retirement in 1921 he was connected with the University of Michigan, first as student, then as teacher and dean, during which long period he achieved for himself a world-wide reputation as a teacher, scientist and epidemiologist.

Retirement from the University did not close his activities. For several years, as Chairman of the Medical Division of the National Research Council, he resided in Washington. It was there he wrote the two volumes of his splendid work, *Epidemiology and Public Health*. In 1926 he produced his autobiography, *A Doctor's Memories*. In the fall of that year, with Mrs. Vaughan, he went as delegate to the Medical Congress in the Orient, visiting China, Japan and

the Philippines. In the spring of 1927 he suffered an attack from which he never fully recovered.

For twenty years following his graduation Dr. Vaughan was engaged in active medical practice. Nevertheless, his interest always centered in laboratory work. From the beginning he was attracted to chemistry and the chemical viewpoint appeared prominently throughout his subsequent work. His first contribution on the separation of arsenic from other metals appeared in 1875. The action of poisons and their detection fascinated him to such an extent that before long his services were in demand as a medical expert and he became a recognized authority in toxicology.

It was but a step to become interested in sanitary matters. The question of the pollution of wells and water supplies arose, and a chemical examination at that early period was the only means of arriving at a decision. At this time Dr. Vaughan was called upon to investigate the not infrequent poisonings from cheese and other milk products. Though bacteriology was then in its infancy he soon realized that the poisonous products were in some way the result of bacterial action. He was among the first to teach that similar products could be the cause of cholera infantum, and that this disease was therefore due to the contamination of milk. Without fully realizing it, the sanitary chemical work was leading him into the new and broader field of modern bacteriology.

It was soon apparent that the old chemical laboratory was inadequate for pursuing problems pertaining to health and disease. His broad vision indicated the need of a separate institution. Accordingly he appeared before the Michigan Legislature of 1887 and secured an appropriation establishing the Hygienic Laboratory at the University. Some attempts were made in the old laboratory to apply the new science of bacteriology to the solution of problems arising in the examination of waters, but it was seen that a thorough training in the new discipline was necessary. At that early period this could only be obtained in Germany. Accordingly, Dr. Vaughan spent the summer of 1888 in Koch's laboratory in Berlin, where, under the direction of Carl Fraenkel, knowledge of the new methods was acquired.

The laboratory building was completed in the fall of that year and opened in January, 1889. It was the first in this country which offered systematic teaching of bacteriology to physicians and students. For twenty years Dr. Vaughan was active as its Director. In 1903, he established there a Pasteur Institute. At that time the antirabic treatment could be obtained in but two or three places in the country.

Dr. Vaughan's investigations in the new laboratory covered many fields. At first, the examination of water supplies claimed much attention and he devised what he termed " the Michigan method " of analysis, which made use of the experimental animal as a means of detecting harmful bacteria. His studies on food poisonings were likewise extensive and thorough. He sought the explanation of the germicidal action of normal serum and found it in the complex chemical constituent nuclein. Even more important were his studies upon the nature of the bacterial poisons or toxins. He devised an ingenious " tank " method for growing pathogenic organisms in quantities in order to obtain a sufficient amount of the cells for the study of the bacterial proteins. By this means he was able to break up the proteins into two portions, one toxic and the other non-toxic. He utilized these results in formulating a valuable theory bearing upon the nature of hypersensitiveness and of fevers.

As an earnest and enthusiastic investigator Dr. Vaughan had few equals. His extraordinary capacity for writing found

expression in more than 200 publications, not including his more pretentious works, on Physiological Chemistry, Ptomaines and Leucomaines, Cellular Toxins, Protein Split Products, Infection and Immunity, and Epidemiology. As an editor he founded the *Physician and Surgeon*, the *Journal of Laboratory and Clinical Medicine*, and served as the first editor of *Hygeia*. During his 30 years of service on the Michigan State Board of Health he did much to spread the growing knowledge of sanitation and public health.

During the Spanish War, he saw active service at Santiago where he contracted yellow fever. Shortly after his recovery he was detailed, with Majors Walter Reed and E. O. Shakespeare, to investigate the disease which prevailed in the American camps. The classical report of the Typhoid Fever Commission was largely prepared by him as the sole surviving member. In the World War he again saw service, this time as a member of the Board in Charge of the Communicable Diseases.

Dr. Vaughan's valuable services brought him such well deserved recognition as the presidency of the American Medical Association, of the Association of American Physicians and of other societies. He was awarded the Distinguished Service Medal, Cross of the French Legion of Honor, and the Kober medal, besides various honorary degrees and memberships in learned societies.

It is as an instructive and inspiring teacher that Dr. Vaughan will be remembered by the thousands of students who had the opportunity and privilege of listening to him. He freely drew upon his experiences in life and made the lectures interesting and forcible by his masterly presentation.

Until his last illness Dr. Vaughan maintained a lively interest in the progress of science and of public health. While he was modest as to his own work he freely recognized merit in others. Personally he was a most lovable man, and his home overflowed with true southern hospitality. He loved his fellow men and gave freely of his time and energy. As a scientist and educator he was among the first. He left an enduring impress in both fields. A great leader, a constructive thinker and a broad idealist is gone.

LETTERS TO THE EDITOR

To the Editor:

The presidential address of Dr. Nicoll, delivered before the State and Provincial Health Authorities of North America, recently published in your valuable journal, attributes a statement to me to which I desire to take exception.

In his excellent discussion on maternity as a public health problem I am quoted as stating that prenatal care and instruction is an " unessential problem " in the general scheme of securing better maternity care. Probably my personal views on this matter are of little interest to your readers, but I feel that in justice to the subject itself I must contradict the false impression which might be conveyed by Dr. Nicoll's remarks. The incident to which he refers occurred at a hearing on the proposed Newton Bill befor a Congressional committee at which I appeared in opposition to this measure. In my argument I stated that prenatal care alone would not solve the problem of the comparatively high morbidity and mortality rates which attend childbirth in this country, but rather that the leading factor in their production was inadequate or poor care in delivery. I also stressed the fact that the Sheppard-Towner activities were centered largely in a multitude of prenatal observations, especially by visiting nurses, without sufficient weight being given to the need for proper attention during labor. Unfortunately the provisions of the Sheppard-Towner Act contribute to this situation.

Adequate prenatal care is not sufficient to improve the mortality from childbearing. A certain number of complications may thus be prevented, but sepsis, for example, which is one of the largest single factors in puerperal mortality, can be but little influenced by prenatal care. Unfortunately a false sense of security has been developed in the minds of patients and others by the notion that prenatal care is all that is necessary, and provisions for safe delivery are in this way apt to be neglected; but this does not imply that prenatal care is a " non-essential problem," and such a point of view is entirely foreign to my opinion.

The so-called problem of better maternity care is not an easy one to solve and will require the combined thought and effort of the community, the medical and nursing professions, and the individual for its effective handling. Stress must not be laid too strongly on any one phase of the work, for thus a lack of balance and proportion results which is detrimental to any advance in this important field of medicine.

Aside from this misinterpretation of my testimony at the hearing on the Newton Bill, I want to commend the timely and valuable address of Dr. Nicoll, which constitutes another evidence of his deep interest in the problem of bettering the puerperal mortality figures of New York State.

George W. Kosmak, M.D.,
Editor, *American Journal of Obstetrics and Gynecology*

To the Editor:

On page 740 of the July issue of the Journal there appeared an article entitled " Rating Your Milk Supply," by Leonard V. Phelps, in which the author (1) briefly outlined the system in use by the U. S. Public Health Service for computing the milk sanitation ratings of municipalities; (2) pointed out features of the formula for determining the General Municipal Milk Sanitation Ratings which in his opinion make it valueless and the results misleading; (3) sug-

gested a substitute formula for the calculation of the General Municipal Milk Sanitation Rating; and (4) presented a "graphical chart" based on his formula, by means of which General Municipal Milk Sanitation Ratings may easily and quickly be determined.

It has been the practice of the Office of Milk Investigations of the U. S. Public Health Service, in reporting survey results, to give the Retail Raw Milk, the Raw-to-Plant Milk, and the Pasteurization Process Ratings, as well as a General Municipal Milk Sanitation Rating, based upon the three afore-mentioned ratings and the percentage of the total milk supply which was pasteurized. It is the formula developed for the determination of this General Rating which Mr. Phelps criticised.

In deriving its formula for the General Municipal Milk Sanitation Rating I am advised by Mr. Frank that the U. S. Public Health Service proceeded on the assumption that the ideally safe milk supply is one to every quart of which every practicable precaution known to preventive medicine has been applied; that is, a supply every quart of which has been both properly produced and properly pasteurized.

Furthermore, the Service formula assumes that the pasteurization precautions are as important as the production precautions.

A rigid application of mathematics upon the basis of the above assumptions will yield the following formula, which is the U. S. Public Health Service formula criticised by Mr. Phelps:

$$\text{General Rating} = \frac{C \times A\% + D \times B\% + E \times B\%}{2}$$

Where: A = Gallons retail raw milk sold per day
B = Gallons pasteurized milk sold per day
C = Retail raw milk rating
D = Raw milk to plant rating
E = Pasteurization process rating
G. R. = General rating

Mr. Phelps charges that the foregoing formula yields misleading results, because variations in B, or the per cent of milk pasteurized, vary the General Rating even though the *excellence* of production and pasteurization remains unchanged.

These variations in General Rating occasioned by variations in B per cent are all justified, in the light of the reasoning that a municipal milk supply approaches the ideal in safety in direct proportion to the percentage of it which is both ideally produced and properly pasteurized. In Mr. Phelps's examples in Table II the pasteurization process ratings are constant (80). It seems to the writer to be quite clear that either of the two supplies of which 80 per cent is pasteurized is safer, and quite logical that it should be rated higher than the supply with which it is compared.

In the third portion of his paper, Mr. Phelps presents his version of a formula for determining General Municipal Milk Sanitation Ratings. This is:

$$\text{G. R.} = \frac{A + \frac{B + C}{2}}{2}$$

Where: A = Raw-to-retail rating
B = Raw-to-plant rating
C = Plant process rating
$\frac{B + C}{2}$ = Combined rating
G. R. = General rating

Nowhere in his paper does Mr. Phelps state that his formula is designed to be used only for determining the ratings in communities in which some portion of the milk is pasteurized. It is logical to assume, therefore, that it can be used to determine general ratings in communities having only retail raw milk supplies, as is frequently the case in small communities.

Suppose, then, the Retail Raw Milk Rating of such a community's supply be 90. The General Rating, according to the Phelps formula, is:

$$\frac{90 + \frac{0 + 0}{2}}{2} = 45$$

This is identical with the result obtained by the use of the U. S. Pub-

lic Health Service formula. It seems, then, that Mr. Phelps has added nothing of value to our machinery for obtaining the G. R. in communities entirely dependent upon raw milk supplies.

Suppose, however, that 5 per cent of the supply (20 gallons of a total supply of 400 gallons—an actual case in an Alabama community) were pasteurized, and that the Raw-to-Plant and Plant Process ratings were those given in Mr. Phelps's examples—80 and 80 respectively. The General Rating of this community supply would then be:

$$\frac{90 + \frac{80 + 80}{2}}{2} = 85$$

According to Mr. Phelps's conception the whole community milk supply is nearly twice as safe because 5 per cent of it is pasteurized! This does not seem logical.

According to the U. S. Public Health Service formula, the General Rating of this community supply would be:

$$\frac{90 \times .95 + 60 \times .05 + 80 \times .05}{2} = 46.75$$

This slight increase in General Rating appears to be a far more logical result of the pasteurization (somewhat imperfectly) of only 5 per cent of the total municipal milk supply.

Assuming, however, that Mr. Phelps intended his general formula to apply only to cities in which at least some pasteurized milk is sold, it is nevertheless mathematically faulty, as is shown by the following examples, in which the volume of milk and the A–B–C ratings are constant, but the percentages of milk sold raw and pasteurized are reversed.

City A consumes 10,000 gallons of milk per day, of which 9,900 gallons is pasteurized, with B and C ratings of 80 each. The other 100 gallons are raw milk of low quality and high bacterial count, with an A rating of 50, a situation frequently found where pasteurization is not compulsory.

City B consumes 10,000 gallons of milk per day, of which only 100 gallons are pasteurized, with B and C ratings of 80 each. The other 9,900 gallons are raw milk of low quality and high bacterial count, with an A rating of 50, a situation not infrequently found, wherein one small plant is trying to introduce pasteurized milk.

Obviously in City A 99 per cent of the milk is moderately safe, whereas in City B 99 per cent of the milk supply is 50 per cent unsatisfactory. Yet the Phelps formula would give both cities the same General Rating, namely, 65.

The U. S. Public Health Service formula, however, would give City A a General Rating of 79.45, and City B a General Rating of only 25.55. These are obviously reasonable ratings in view of the contrasting circumstances, and illustrate the utter necessity of including the percentage of milk pasteurized in the formula.

If the foregoing reasoning is correct, the conclusions of Mr. Phelps are unfounded, and his objections and proposed substitute are unsound.

C. A. ABELE,
Director of Inspection
State Board of Health
Montgomery, Ala.

TO THE EDITOR:

The U. S. Public Health Service has issued a statement concerning the General Rating, which is derived from the use of their formula, "that a 100 per cent General Rating means that all of the community's milk supply has been both properly produced and properly pasteurized." It would seem logical then to assume that a milk supply having a G. R. higher than another would be one that was better produced and better pasteurized. But this is not the case. Table II, page 743 of the July issue of the JOURNAL, shows an example in which a milk supply may either be produced or pasteurized one-half as well

as another and still receive a higher G. R., simply by increasing the percentage of the total milk supply pasteurized. My critic attempts to justify this by stating that a milk supply approaches the ideal in safety in direct proportion to the percentage of it which is both ideally produced and properly pasteurized, and that a higher rating should be given that having the larger percentage pasteurized. However, this statement does not deny the fact that the G. R. does not show the excellence of production or pasteurization.

I did not undertake to discuss in my article what constitutes the ideal milk supply, but merely what I considered defective in the U. S. Public Health Service formula.

My critic's statements would lead one to believe that it was not intended that the federal G. R. should show how properly the milk had been produced or pasteurized, but rather the " safety " of the supply, the safety being dependent upon the degree of excellence with which the milk had been both produced and pasteurized, and what percentage of the supply had been pasteurized.

When a rating stresses a particular subject, it is no longer a general rating. I did not state tha a special rating, in which pasteurization was stressed, should not give added credit for increases in the percentage of the supply pasteurized. My contention was that pasteurization should not be stressed in a general rating formula, and especially when the stressing of it makes it impossible to determine from the G. R. the excellence of production and pasteurization, and the manner in which a community has complied with the dairy regulations as given in the Standard Milk Ordinance.

Assuming that the federal G. R., as my critic has implied, was intended to show the safety of a community's milk supply, and not how properly it had been produced or pasteurized, it can easily be shown that in many instances it does not show safety. One G. R. higher than another does not necessarily indicate a safer supply.

For example, in Table II, an A–B–C score of 80–60–80 where 20 per cent of the supply was pasteurized gave a G. R. of 46.0, while another 40–30–80 when 80 per cent of the supply was pasteurized gave a G. R. of 48.0. While the latter supply had a higher G. R. than the former, because of the higher percentage of milk pasteurized, the raw milk going to the plant was of such a poor quality that pasteurizing would not change it into a good milk, nor would it compensate for its improper production.

To pasteurize a poorly produced milk will not make it safe, and to pasteurize improperly a properly produced milk is much worse than not pasteurizing it at all.

Since, in the federal formula, production of milk going to the plant and pasteurization are given equal weight, it would seem that the same G. R. would have resulted had the production to plant score been constant at 80 in both cases, and the pasteurization process been rated 60 and 30 respectively. A raw milk properly produced is safer than one improperly pasteurized.

Just what score would indicate improper production or improper pasteurization, may be a matter of opinion, but certainly no one will deny that a score of 30 or less would do so.

It might be logically assumed, providing my critic's implied interpretation of the intended meaning of the federal G. R. is correct, that two milk supplies having equal general ratings were equally safe. Such is not the case.

TABLE A

Milk Supply	A–B–C Score	Per cent Milk Pasteurized	Per cent Milk Raw	General Rating
I	80–75–30	90	10	51.25
II	80–75–80	30	70	51.25
III	80–70–20	90	10	44.5
IV	80–70–80	14	86	44.9

A supply with an A–B–C score of

80–75–30 would give a G. R. of 51.25 when 90 per cent of the milk was pasteurized, while another having a corresponding score of 80–75–80 and 30 per cent pasteurized would also have a G. R. of 51.25. Both supplies are produced equally well, but the first is improperly pasteurized, yet it is accorded a G. R. equal to that of the second simply because 60 per cent more of the supply is pasteurized.

It cannot be reasoned that the two supplies are equally safe, yet the federal formula gives them equal ratings, indicating that they are equally safe. A second example of this type may be seen in Table A under supplies III and IV, in which the general ratings are almost equal. Since values for B and C in the A–B–C score may be interchanged without affecting the G. R., it can be seen that both of these examples might have had improperly produced supplies instead of ones that were improperly pasteurized.

I suggested in my article the following formula which would show how well a community was complying with the regulations of the ordinance:

$$G.\,R. = \frac{A + \frac{B + C}{2}}{2}$$

Where: A = Retail raw rating
B = Raw-to-plant rating
C = Pasteurization process rating
G. R. = General rating

While it is true that I did not state that the suggested formula was designed to be used only in communities in which some portion of the milk was pasteurized, the context of my article made it the only logical conclusion. Twice on page 746, and at least once on page 743, of the July issue of the JOURNAL, it was plainly stated that it was my opinion that the G. R. should show compliance with dairy regulations, and only that. Obviously a supply in which none of the milk was pasteurized would have a G. R. identically the same as the retail raw score.

Nowhere did I state that my formula would give a G. R. showing "safety" of the milk supply. My critic's assumptions and examples are therefore irrelevant and will not be discussed.

I suggested a formula which would show in the G. R. compliance with regulations as given in the Standard Milk Ordinance, and that only, not because a formula capable of producing a special rating showing the safety of the milk supply would not be desirable. I did not intend to imply that a formula designed to show safety of the supply should not give added scoring to supplies showing a larger percentage of milk pasteurized than another, providing that the suppiies had both been properly produced and properly pasteurized.

I have shown that the federal formula does not give a G. R. which shows how properly a milk supply has been both produced and pasteurized, neither does it show "safety" of the milk supply, nor to what degree a community is complying with the regulations of the Standard Milk Ordinance.

LEONARD V. PHELPS,
City Bacteriologist and Chemist,
Bluefield, W. Va.

ASSOCIATION NEWS

1929 ANNUAL MEETING PROCEEDINGS

THE 58th Annual Meeting of the American Public Health Association is a milestone in the progress of this organization. Several important changes in the Constitution and By-laws were adopted in accordance with recommendations of the Committee on Revision of the Constitution and By-laws and the Committee on Coöperation, Development and Finance, after an exhaustive study of the activities, policies, and future opportunities of the Association. The reports of officers and committees were constructive and indicative of progress.

The program arranged by the Central Program Committee included 47 sessions and 180 papers, exclusive of the programs of twelve related organizations which also met in Minneapolis at the same time. The annual meeting registration numbered 795 members and 569 guests. Special representatives were present from China, Hawaii, and the Philippine Islands. An unusually full program of general and section meetings attracted large audiences. The educational exhibits and demonstrations were in general considered to be above the average.

EXECUTIVE BOARD

The Executive Board consisting of 10 members held a busy session when reports were received from the officers and 9 major committees.

The Committee on Exhibits reported an income of $16,000 from Annual Meeting exhibits. Seven commercial exhibits were not accepted.

Requirements for affiliated societies were discussed by the Executive Board, but were referred to the incoming board for further consideration.

The Treasurer's report showed a more healthy financial status than in several previous years. According to the auditor's statement as of August 31, 1929, the net worth of surplus of the American Public Health Association was $26,747.85, with total assets of $58,127.92 and total liabilities of $31,380.07. The Executive Secretary's report will be reviewed in subsequent paragraphs.

GOVERNING COUNCIL

The Governing Council held four meetings, in addition to a brief meeting of the incoming council, with gratifying attendance at each meeting of from 38 to 50, including section officers and representatives of affiliated societies averaging 43 Fellows.

The business of outstanding importance related to amendments to the Constitution and By-laws. These amendments will soon be published in detail in the JOURNAL. One of the principal changes in the Constitution provides that the officers of the Association shall be a President, a President-elect, three Vice-Presidents, an Executive Secretary, a Treasurer, and the Chairman of the Executive Board. The addition of the offices of President-elect and Chairman of the Executive Board should aid in long term planning and strengthen the administration of Association affairs. The officers, with the exception of the Chairman of the Executive Board and the Executive Secretary, are elected by written ballot of the Governing Council, while the Chairman of the Executive Board and the Executive Secretary are elected by the Executive Board, which board defines the duties and authority of these respective offices. The amendments also provide that at

the annual meeting the Governing Council shall determine in general outline the allocation of association moneys in the budget, and shall receive from the Executive Board a definitely formulated statement of a program of the major activities proposed for the ensuing year.

One of the important amendments to the By-laws provides for four standing committees of the Association in place of a large and indefinite number as previously. These committees are as follows:

Committee on Fellowship and Membership
Committee on Meetings and Publications
Committee on Administrative Practice
Committee on Research and Standards

Certain problems of the Association may be handled through sub-committees or section committees. Section Councils and officers remain essentially as before, but it is provided that sections submit annually to the Governing Council through the Executive Board a report of the transactions of the section during the past year, and of the plans, scope and policy for the succeeding year—as well as advise with respect to the appointment of technical committees, subcommittees or section representatives on committees of the Association.

During the meetings of the council, 57 applications for Fellowship and 30 applications for Life Membership were approved. The report of the Committee on Resolutions has already been published in the JOURNAL.

ASSOCIATION COMMITTEE REPORTS

ADMINISTRATIVE PRACTICE

The past year has been one of great activity for the Committee on Administrative Practice, continuing its work of collecting and analyzing material relating to the administration of public health work. Its sub-committees have issued progress and final reports which have been received with keen interest.

The Sub-Committee on Record Forms has issued for experimental use, in line with its adopted policy, a complete set of tuberculosis clinic records. The publication of these was made possible through coöperation and financing in part by the National Tuberculosis Association.

A second school health examination form, to be used in those communities providing for medical examinations, has been prepared by the committee and presented to the public by publication in the *American Journal of Public Health*.

The Sub-Committee on Model Health Ordinances has presented its first progress report, which lists the minimum requirements for local health laws and will serve as a guide to the formulation of the basic laws applicable to county, district and municipal health organization and practice.

The Sub-Committee on Organized Care of the Sick, which it will be remembered has representatives from both the public health group and the hospital group, has continued its consideration of this important question, and has published in the JOURNAL,* a thought-provoking list of questions covering "What Public Health People Should Know about Hospitals and Clinics in Their Community." The committee is at present engaged in a detailed study of the Care of Communicable Diseases in General Hospitals. A preliminary report of this study was made two years ago, which developed considerable interest both in the public health and the hospital fields. The present study is to show in some detail the advantages and difficulties of caring for communicable diseases in general hospital plants.

Under the direction of the *Sub-Committee on Appraisal of City Health Work*, the *Appraisal Form for City Health Work*, revised last year, has been distributed and put into actual practice beginning January 1, 1929. Its reception has been even more favorable than previous editions. Local health officers

* Apr., 1929, p. 397.

are expressing their approval of the many improvements made in the objectivity of the subject matter. There are, however, a number of items which are still subject to change.

The American Social Hygiene Association has published with descriptive comments the section of the Form dealing with Venereal Diseases, to stimulate greater interest among constituent members and others interested in the service.

The National Tuberculosis Association recently reprinted those items which deal directly with tuberculosis services and the related activities which frequently form a part of the program of local tuberculosis associations.

The National Committee for Mental Hygiene is distributing for experimental use the section dealing with Mental Hygiene services, prepared at the time of the last revision of the *Appraisal Form*, but not a part of the printed form.

The study of rural health work, undertaken last year on a grant from the Commonwealth Fund, has been continued under the *Sub-Committee on the Appraisal of Rural Health Work*. Up to the end of May, 1929, 15 counties in 9 states had been studied, covering a wide range of organization of state and local services, geography, climate and topography, and population.

As reported a year ago, studies of state health departments were carried on and reports prepared at the request of three state commissioners of health. The studies of last year have been condensed and will be printed by the Publication Division of the Commonwealth Fund, with the permission of the health officers concerned. This publication will be available for state health administrators, students and others interested in public health work.

The Sub-Committee on Health Department Reports has continued its activity, working out in tabular form and content the statistical tables recommended for inclusion in annual reports. The adoption of recommendations * of this committee by health departments throughout the country would insure more satisfactory statistical material than is now available.

Since the last meeting the plan for the Health Conservation Contest, to be conducted under the auspices of the Chamber of Commerce of the United States, has been developed and the contest launched. The details of the plan and the schedule for grading cities entered in the contest have been discussed with three groups of health officer representatives, western, eastern and central divisions. The representatives in each group were selected by the members of the Health Officers Section of the Association.

The Sub-Committee on Public Health Nursing is focusing its attention on: (1) the possibility of having some qualitative as well as quantitative measure of nursing service, (2) gathering material relative to the merits or demerits of the various systems of administering school nursing, and (3) material relative to the function and the administration of public health nursing in state departments of health.

The program of *Coöperation with the General Federation of Women's Clubs* carried on for the past three years has received considerable attention during 1929, with profit, we believe, both to the Association and to the Federation.

The Field Director was made a member of the Advisory Board to the Division of Public Health, Child Welfare and Community Service of the Public Welfare Department of the Federation, and has assisted in the planning of a health program covering community studies, health institutes, and general education in the field of maternal hygiene.

The *Field Service* of the Committee on Administrative Practice has been

* See page 34, this issue, for Report.

continued along the lines which have become fairly well crystallized, that is, rendering service to cities or communities approximately at cost. The communities studied so far this year are:

Counties	*Cities*
Pitt Co., N. C.	Fargo, N. D.
Clarke Co., Ga.	Quincy, Mass.
Rutherford Co., Tenn.	Providence, R. I.
Cattaraugus Co., N. Y.	Honolulu, Hawaii
	Milton, Mass.
Marion Co., Ore.	Nashville, Tenn.

In Providence and Honolulu certain aspects of hospital problems and the care of the sick were included in the study. The cities of the Demonstration Areas have been included at the request of the Commonwealth Fund and the Milbank Memorial Fund, as a part of their service to these communities. Pitt County, which was as already stated studied as a prize award, is the only survey which was not paid for by the community or an interested agency.

CHAUTAUQUA HEALTH PROGRAM

The Chautauqua Health Program Committee reported a very successful season, with many practical results. In 85 towns of 10 states, the health lecture of the Chicago Seven-Day Redpath circuit reached 72,700 people. In addition, 2,150 people were reached in two other communities through two independent Chautauqua programs. The number of addresses, outside of professional engagements, which the lecturer gave before luncheon and civic clubs and church congregations, would increase the number of his hearers several hundred more.

In any consideration of the health program, the children's Chautauqua must not be disregarded. Its program was given on the afternoon following the health lecture and it attracted fully as many people, particularly parents and relatives, as the evening lecture.

A full-time health Chautauqua director visited the capitals of the states on the circuit, obtained the hearty coöperation of the state health officers and investigated conditions in the Chautauqua towns previous to the lecture. These activities proved most fruitful in providing the lecturer with advance information regarding problems to be stressed or work to be featured. The Tennessee State Health Department sent out a prospectus of the plan and a request for relevant information to health officials and civic minded persons in towns under its jurisdiction. This was a valuable preliminary. It established the status of the program and led to an intelligent understanding of it. The Kentucky Board of Health gave a summary of health conditions in each town and the points to be emphasized. The Indiana State Health Department sent a representative to the towns about two weeks before Chautauqua arrived.

When such solid and practical information concerning the policies of the State Health Department, as well as particular local health problems from the state's viewpoint, had been obtained by the director, a personal visit was made by him to each place where such was advised. In Georgia 5 towns were visited; in South Carolina 8; in North Carolina 7; in Tennessee 12; in Kentucky 14. These calls always resulted in a much better understanding of local health matters than could be gotten in any other way. It is felt that individualizing the lecture to the locality gave it a force and practical interest that added tremendously to its value.

E. L. Bishop, M.D., Commissioner of Health, State of Tennessee, after recounting in detail the stimulating effect on the public health movement in his state directly due to the Chautauqua Health Program, summarized as follows:

> In our state the program was largely instrumental in bringing about the establishment immediately of two county health departments, the quite probable establishment of two additional departments and the possible

establishment of still another county health department. Mr. Snyder's visit to Tennessee was one of the most worthwhile educational projects and bore more substantial fruit than any other single project it has been our good fortune to have.

In addition to the above committees, progress reports were made on *Census of Public Health Workers, Federal Health Legislation, and Dairy Products*. The report of the *Committee on Annual Meetings*, recommending Fort Worth as the next meeting place, received favorable action. Attention was called to the necessity for vigorous section activity in developing a successful annual meeting, and the Executive Board was requested to consider the provision of a moderate budget for each section to aid in the work.

EDITORIAL COMMITTEE

Readers of the JOURNAL may be interested to note the increasing appreciation shown in the magazine by subscribers as well as by members. The average monthly paid circulation of the JOURNAL for the 12 months ending August 31 was 5,624 copies compared with 4,817 copies for the same previous period.

JOURNAL management is to provide each month articles sufficient in number and in length to satisfy all the interests in the Association and still keep within the budget. The only solution to this problem is more short articles.

At the beginning of the year the policy was adopted of promoting the demand for reprints from the JOURNAL, believing that this would give the material wider circulation and increase interest in the JOURNAL. This has resulted in orders for reprints of 60 articles from the January to August, 1929, issues and total sales of 144,275 reprints.

The outstanding need of the JOURNAL is for a larger budget. In spite of the fact that the present arrangement of a part-time editor is working satisfactorily, the importance of the JOURNAL in the Association's affairs merits full-time editorial service. The report of the Managing Editor shows that the JOURNAL is more than paying its way and the Editorial Committee believes that a greater share of the profits should be put into the JOURNAL. There is need not only for more editorial service, but also for a larger JOURNAL. Less than

AVERAGE MONTHLY CIRCULATION (PAID AND FREE)
FOR EACH YEAR ENDING AUGUST 31

	Members	Subscriptions	Free	Total
1924	3,016	787	87	3,890
1925	3,095	842	108	4,045
1926	3,189	947	129	4,265
1927	3,392	1,045	132	4,569
1928	3,562	1,255	166	4,983
1929	3,952	1,672	199	5,823

The income from advertising for the 12 months ending August 31, 1929, was $25,078.07, compared with $13,378.04 for the previous year. This increase, accomplished without an increase in advertising rate, is in part due to the taking over of the business of *The Nation's Health*.

One of the most difficult problems of

35 per cent of the 199 papers and reports presented at the Chicago meeting were published. This low figure is due in part to the unusually large program at that meeting, but the figures for 1926 and 1927 were 44 per cent and 42 per cent respectively. Roughly two-thirds of the JOURNAL during the year is given to Annual Meeting papers and Associa-

DISTRIBUTION OF MEMBERS AND FELLOWS IN THE SECTIONS—SEPTEMBER 1, 1929

Section	Total Membership in Each Section	No. of Fellows	Per cent of Total Fellows	No. of Active Members	Per Cent of Total Active Members
Health Officers	411	168	22.9	243	7.7
Laboratory	380	130	17.7	250	7.9
Vital Statistics	80	35	4.8	45	1.4
Public Health Engineering	268	109	14.8	159	5.1
Industrial Hygiene	126	39	5.3	87	2.8
Food, Drugs and Nutrition	129	33	4.5	96	3.0
Child Hygiene	211	64	8.7	147	4.7
Public Health Education	247	34	4.6	213	6.8
Public Health Nursing	244	29	3.9	215	6.8
Epidemiology	8	7	1.0	1	0
Unaffiliated	1,785	87	11.8	1,698	53.8
Total	3,889	735	100.0	3,154	100.0
Add	56	for Sustaining Fellows	Members, Affiliated Societies and Honorary		
Total Membership	3,945				

tion reports. To raise this figure materially would further reduce the space now available for timely contributed articles.

EXECUTIVE SECRETARY'S REPORT

Reference has previously been made to the financial status of the Association as shown in the Treasurer's report. An income for the fiscal year 1929 of $117,348, an expense of $104,881, and a net gain of $12,467, compares with an income of $31,187, an expense of $29,566, and a net gain of $1,621 in 1924.

Proportionally the income from membership dues, sales of publications, advertising and such basic sources is steadily decreasing. Actually the income from these sources in 1928 was three times as great as it was in 1923. Seventy per cent of the Association's total income in 1928 was from these sources as compared with 95 per cent in 1924. The income from grants is as rapidly increasing, representing 5 per cent in 1924 and 30 per cent in 1928. The proportion will be still higher in 1929. This changing basis of income

MEMBERSHIP OF AFFILIATED SOCIETIES AS REPORTED BY THEIR SECRETARIES

Year of Affiliation		Affiliated Members	Members who are also Members of A. P. H. A.	Total Members of Society
1928	Connecticut Public Health Association	46	47	93
1925	Massachusetts Assn. of Boards of Health	83	63	146
1922	Michigan Public Health Association	164	160	324
1928	Missouri Public Health Association	74	87	161
1923	New Jersey Public Health Association	133	70	203
1925	New Mexico Public Health Association	31	6	37
1927	Northern California Public Health Assn.	74	65	139
1927	Ohio Society of Sanitarians	64	222	286
1925	Pennsylvania Public Health Association	140	87	227
1927	Southern California Public Health Assn.	515	80	595
1928	South Carolina Public Health Assn.	78	33	111
1925	Texas Association of Sanitarians	115	65	180
1925	Virginia Public Health Association	87	63	150
1926	West Virginia Public Health Assn.	36	40	76
	Total	1,640	1,088	2,728

SESSIONS, PAPERS AND REPORTS AT ANNUAL MEETINGS

Year	Total Number of Sessions	Number of Papers and Reports	Average No. of Papers per Session	Per Cent Published in Journal
1924	28	120	4.3	65.6
1925	29	128	4.4	57.9
1926	34	146	4.3	44.2
1927	34	155	4.6	41.9
1928	47	199	4.2	34.2
1929	47	180	3.8	—

REGISTRATION OF MEMBERS AND GUESTS

Year	City	Total Registration	Number of Members	Number of Guests	Per Cent Guests	Per Cent of Members of the Association Registered at Meeting
1924	Detroit	894	517	377	43	16
1925	St. Louis	876	528	348	46	16
1926	Buffalo	1474	821	653	45	25
1927	Cincinnati	1158	795	363	31	23
1928	Chicago	2577	1057	1520	59	28
1929	Minneapolis	1364	795	569	42	20

must be recognized in the future planning of the Association.

Membership—On September 1, 1929, there were 3,945 members of all classes in good standing as against 3,735 on September 1, 1928. This represents a gain of 645 new members and a loss of 435, making a net gain of 210 for the previous 12-month period.

Affiliated Societies—There are at present 14 affiliated societies, 3 having been affiliated at the last Annual Meeting. One application (Georgia) is awaiting action at this meeting.

In addition to supplying reprints and copies of its own publications, the Association has continued its *Book Service*, supplying information on public health books to members and facilitating the purchase of health books by the members.

Syndicated Public Health Bulletin—The subscription rates were increased in January approximately 25 per cent, with no loss in subscribers. There has been a very insistent but small demand for this service.

Annual Meeting—It is a common observation that Annual Meetings are growing in size and complexity. The growing complexity is in a large measure due to the increasing number of smaller organizations meeting with us. The financing of meetings is becoming a large problem. A special memorandum on this subject to the Executive Board was considered.

Last year the Executive Board decided to give up the policy of looking to Annual Meeting cities to carry a major portion of the costs of Annual Meetings, and to adopt the policy of financing

INCOME FROM ANNUAL MEETINGS

City	Year	From Exhibits	No. Booths Sold	From Local Committee	Total
Detroit	1924	$2,964.50	26	$4,621.38	$7,585.88
St. Louis	1925	2,319.75	30	6,000.00	8,319.75
Buffalo	1926	4,358.46	33	3,500.00	7,858.46
Cincinnati	1927	7,610.00	33	00.00	7,610.00
Chicago	1928	20,254.85	91	744.24	20,999.09
Minneapolis	1929	14,260.00	65	00.00	14,260.00 (to Aug. 31)

meetings out of the sale of exhibit space and other income. In Chicago considerable progress was made in this direction, and this year the Association will carry its full share of annual meeting expense.

Chautauqua—In addition to its usual administrative duties the Executive Office has administered the Chautauqua program carried on again this year through a grant of $15,000 from the Milbank Memorial Fund. One field worker has been employed for this service and the report on this project has been presented by the Chautauqua Health Program Committee.

Field and Organization Contacts—A curtailed staff, a decreased budget and administrative problems have limited the field and organization contacts of the Executive Secretary. He has, however, represented the Association on the Executive Committee of the National Health Council, on the Board of Directors of the Joint Vocational Bureau, at the Conference on Public Health of the American Medical Association, and on the Board of Directors of the American Association for the Advancement of Science.

This report would be incomplete if it did not also record the fact that the Executive Secretary's office has given much assistance during the year to the work of several Association committees, especially the *Committee on Coöperation, Development and Finance,* and if it did not acknowledge particularly with deep appreciation the invaluable assistance of a devoted staff.

NEW MEMBERS

J. A. Baker, M.D., Middlebourne, W. Va., County Health Officer

Dr. Harvey Bartle, Philadelphia, Pa., Chief Medical Examiner, Pennsylvania Railroad Co.

Gordon Bates, M.D., Toronto, Ont., General Secretary, Canadian Social Hygiene Council

A. L. Bavone, Bismarck, N. D., Director, Bureau of Sanitary Engineering

Eva L. Birkhead, Clay, W. Va., County Public Health Nurse

A. Edward Bostrom, M.D., Waubay, S. D., Epidemiologist, Board of Health

Margaret L. Bronson, M.D., New Haven, Conn. (Assoc.)

Helen A. Cary, M.D., Portland, Ore., Director, City Public School Health Dept.

T. E. Cato, M.D., Glenville, W. Va., County Health Officer

Virgil A. Deason, M.D., Logan, W. Va., County Health Officer

William H. Doolittle, Chicago, Ill. (Assoc.)

Kendall Emerson, M.D., New York, N. Y., Managing Director, National Tuberculosis Association

Arthur A. Fleisher, Philadelphia, Pa., President, Jewish Hospital Association (Assoc.)

Sadye L. Hatcher, R.N., Henderson, N. C., County and City Nurse

Bertha B. Hayes, Detroit, Mich., Nutrition Director, Detroit Dairy and Food Council

R. D. Higgins, M.D., Ashland, Ky., Director of Public Health

Edwin E. Hubbard, M.D., Dearborn, Mich., Director, Medical School Service

Hughes B. Jenkins, M.D., Sandersville, Ga., Health Commissioner, Washington County

Ellsworth Johnson, M.D., Windom, Minn., County Health Officer, Cottonwood County

Helen R. Katen, Bismarck, N. D., Executive Secretary, N. D. Tuberculosis Association

Alberto G. Laurel, Sc.B., Manila, P. I., Field Director and Bacteriologist, Division of Malaria Control

Anthony J. Lorenz, Chicago, Ill., Research Consultant, Quaker Oats Co. (Assoc.)

Olive McGinnes, R.N., San Francisco, Calif., Supervisor of School Nurses

Mary J. McGovern, R.N., Saginaw, Mich., Supervisor of Nurses, Dept. of Health

James R. Matthews, B.Sc., Niagara Falls, Can., Personnel and Industrial Relations Worker (Assoc.)

Fred B. Messing, D.P.E., Portland, Ore., Executive Secretary, Oregon Social Hygiene Association

Carl S. Miner, B.S., Chicago, Ill. (Assoc.)

Allen F. Murphy, M.D., Beckley, W. Va., County Health Officer

John T. Myers, M.D., Omaha, Nebr. (Assoc.)

J. J. Nichols, New York, N. Y. (Assoc.)
Richard J. O'Brien, M.D., Rosebud, S. D., Supt., Tod County Bd. of Health
John O. Polak, M.D., Brooklyn, N. Y., Teaching obstetrics and gynecology (Assoc.)
Daniel L. Seckinger, M.D., Savannah, Ga., Deputy Commissioner of Health
Mack M. Shafer, Dayton, O., Industrial Physician, Frigidaire Corporation
Belle Sherwin, B.S., Washington, D. C. (Assoc.)
Orville Simmons, Kell, Ill., Assistant Director of Physical Education (Assoc.)
Gertrude R. Smith, Brooklyn, N. Y., Assistant Director, Brooklyn Visiting Nurse Association
E. Lorene Standish, Waterloo, Ia., Visiting Nurse, Social Welfare League
Trent Stout, M.D., Pierre, S. D., Supt., Hughes County Board of Health
Fred E. Stuart, Daytona Beach, Fla., Bacteriologist and Chemist, Water Works Laboratory
W. W. Towne, Waubay, S. D., Sanitary Engineer, State Board of Health
Frank L. Woodward, B.E., Minneapolis, Minn., Associate Sanitary Engineer, Dept. of Health

DECEASED MEMBERS

P. H. Brigham, M.D., Florence, S. C., Elected Member 1926
Pearl M. Hall, M.D., Al-gwah-ching, Minn., Elected Member 1908
M. J. Ragland, D.V.M., Salisbury, N. C., Elected Member 1925
F. M. Smersh, M.D., Owatonna, Minn., Elected Member 1899
Victor C. Vaughan, M.D., Richmond, Va., Elected Member 1918, Fellow 1925, Honorary Fellow 1926
Hazel D. Bonness, M.D., Stillwater, Minn., Elected Member 1923, Fellow 1926
R. W. Corwin, M.D., Pueblo, Colo., Elected Member 1913, Fellow 1922
Frederick R. Green, M.D., Chicago, Ill., Elected Member 1915, Fellow 1922
W. C. Sieker, Milwaukee, Wis., Elected Member 1918
Robert M. Burnett, Southboro, Mass., Elected Member 1919
Boris D. Bogen, Cincinnati, O., Elected Member 1927
Lucien Howe, M.D., Cambridge, Mass., Elected Member 1926
Anna M. McGee, R.N., Schenectady, N. Y., Elected Member 1926

INTERNATIONAL HYGIENE EXHIBITION

There will be held in the city of Dresden, Germany, from May to October, 1930, an International Hygiene Exhibition, sponsored by the Deutsches Hygiene-Museum. The opening of this exhibition will also mark the dedication of the new building for the Deutsches Hygiene-Museum.

It will be recalled that this is the organization which was responsible for the exceedingly interesting educational hygiene exhibit shown in Dusseldorf and in other European cities in 1926.

Many European countries have already reserved space in this exhibition, and Dr. Arthur Schlossman of Dusseldorf, a member of the Board of Directors of the Deutsches Hygiene-Museum, has just visited America where he has discussed with a number of national health organizations, official and unofficial, the possibility of an American exhibit in the exhibition.

Further information concerning the proposed exhibition can be secured by addressing the Managing Editor of the *American Journal of Public Health and The Nation's Health*.

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D. P. H.

Full-time Health Protection—Concrete evidence that fewer mothers and infants die among those reached by full-time modern health service will be found in figures recently compiled for the Child Health Demonstrations of the Commonwealth Fund:

During the 4-year period covered by this special study there were 10,444 births in the four demonstration communities. In 2,518 cases, about one-fourth of the total, nurses of the health department gave prenatal instruction and supervision in coöperation with the family physician. In the group under such supervisory care there were only 8 maternal deaths in comparison with 60 in the group not served, 65 stillbirths in comparison with 383 in the group not served, and 40 infant deaths under 1 month in comparison with 297 in the group not served.

The comparative mortality and stillbirth rates are given in Table I.

In these four communities 6,234 infants between 1 month and 1 year of age had either field nursing service or medical supervision in health centers, or both, while 3,425 infants did not have such care. There were 113 deaths in the group served and 163 in the group not served. The comparative mortality rates in this age group (calculated in relation to the number of infants still alive at 1 month of age) were as shown in Table II.

Where care was given the infant mortality rates were especially low for congenital causes, respiratory diseases, diarrhea and enteritis. Among infants

TABLE I

	Maternal Deaths per 1,000 Births		Stillbirths per 1,000 Births		Infant Deaths under 1 Month per 1,000 Live Births	
	Under Care	Not under Care	Under Care	Not under Care	Under Care	Not under Care
All Demonstrations	*3.2*	*7.6*	*25.8*	*48.4*	*16.3*	*39.4*
Fargo, N. D.	3.9	5.4	17.0	44.2	9.3	49.4
Marion County, Ore.	0.0	3.8	6.2	37.5	16.7	31.4
Clarke County, Ga. Total	*6.5*	*15.2*	*30.4*	*70.1*	*33.6*	*46.2*
White	4.8	6.3	9.7	44.0	29.3	31.7
Colored	7.9	28.6	47.6	109.6	37.5	69.7
Rutherford County, Tenn. Total	*2.5*	*8.3*	*43.1*	*49.3*	*12.9*	*39.2*
White	1.8	7.3	38.9	46.7	9.2	34.4
Colored	4.0	11.5	52.6	57.4	21.4	54.8

TABLE II

	Under Care	Not under Care
All Demonstrations	*18.1*	*47.6*
Fargo, N. D.	16.5	80.7
Marion County, Ore.	4.3	25.9
Clarke County, Ga. Total	*19.5*	*71.8*
White	7.6	49.1
Colored	34.4	114.5
Rutherford County, Tenn. Total	*31.5*	*57.8*
White	28.9	48.6
Colored	39.4	83.7

under 1 month of age the mortality rate from congenital causes was 11.5 for the group served and 31.0 for the group not served. Among the older infants the rates for the group served were 5.0 for respiratory diseases and 3.8 for diarrhea and enteritis, as compared with 14.3 and 13.4, respectively, for the group not served.

These figures are supporting evidence that a favorable showing can be secured in the form of low mortality rates where preventive maternity and child health services are organized.—*Health Officer's News Letter*, A. P. H. A., Nov. 22, 1929.

Full-time Health Protection in Kansas—In addressing the annual meeting of the County Commissioners in Kansas on November 20, Earle G. Brown, M.D., Secretary of the State Board of Health, cited the value of efficient county health work in the control of communicable diseases. In Jefferson County there was a full-time County Health Department from August 1, 1925, to June 30, 1929. The accompanying table offers a comparison of the number of deaths in this district from certain communicable diseases for the 4-year period immediately preceding the organization of the full-time health organization and for the 4-year period during which the full-time health service was in effect.

The difference in the number of deaths in the two 4-year periods represents an economic saving of approximately $125,000 for communicable diseases alone. In addition to this there has been a physical inspection of school children with correction of defects; water, milk and food sanitation; infant and maternal hygiene and other recognized health activities tending toward the promotion of positive health habits.

	1921–1924	1925–1929
	Part-Time Health Protection	Full-Time Health Protection
Whooping cough	4	1
Scarlet fever	2	0
Diphtheria	9	0
Smallpox	0	0
Measles	1	0
Typhoid fever	2	0
Tuberculosis	21	7
Totals	39	8

County-Wide Health Survey—A sanitary and health survey was made during 1927 and 1928 of Darke County, O., 71 individuals participating in the field work. Every house, urban or rural, in the entire county was visited. The 1920 census gave a population of 42,911. There are 42 physicians in the county and 134 schools with a total enrollment for 1928 of 8,668. One small hospital with 20 beds is located in Greenville. The county has no tuberculosis hospital and no isolation hospital.

The full-time staff of the County Health Unit numbers 8: the Health Commissioner, his Deputy, a sanitary inspector, a supervising nurse, 3 field nurses and 1 clerk. There are also 3 part-time assistants. In 1927 the per capita expenditure was 42 cents and this was increased in 1928 to 46 cents.

During the survey 10,782 houses were located. It was found that of 31,791 persons actually dealt with in the survey, 3.3 per cent had had smallpox, 27.1 per cent had been successfully vaccinated and 69.5 per cent were unprotected. Approximately 80 per cent of the school children were unprotected. The county is therefore wide open to smallpox.

It was found that 6.4 per cent had had typhoid fever and 5.4 per cent scarlet fever. Undulant fever is a real danger as indicated by the large percentage of milch cows shown to be infected with *B. abortus*. A definite diagnosis of undulant fever was made in 10 human cases. The county being largely rural, more than 75 per cent of the people are

served with outdoor closets of the surface or earth vault type. Of school children, 45.6 per cent showed physical defects.—Reference M. E. Barnes, *Pub. Health Rep.*, 44: 2315 (Sept. 27), 1929.

Tuberculosis Program for Children—Since 1924 approximately 100,000 children have been examined by the Massachusetts Department of Public Health. An analysis of the available figures shows that when children begin school life 20 per cent are infected with tuberculosis, at age 10 there are about 28 per cent infected and at 15 approximately 35 per cent. It has been found that children are infected with the tubercle bacilli to the same degree regardless of nutrition or nationality, if they are exposed to an open case of tuberculosis. When there is definite contact with pulmonary tuberculosis, children are almost always infected.—Henry D. Chadwick, The Ten Year Program for Children, *The Commonhealth*, July-Sept., 1929.

LABORATORY

C. C. YOUNG, D. P. H.

A RAPID METHOD FOR PIPETTING BROTH IN MEASURED AMOUNTS

G. D. CUMMINGS

Bureau of Laboratories,
Department of Health, Lansing, Mich.

EVERY media division has had an order at some time for tubes containing measured amounts of broth. When such an order is received it means that the broth must be measured out by burette or by hand. Either method is troublesome and time consuming when the order is large. In this laboratory we employ the set-up illustrated in the accompanying photographs. Figure I shows in detail the parts needed, while Figure II is an assembled picture of the actual operation. Figure I, A, is the set-up ordinarily used for tubing broth in unmeasured amounts so that B is the only new addition.

The operation of the pipette requires two people, one to operate the pipette, the other to hold the tube. With both Mohr pinchcocks closed the funnel is filled with the broth to be tubed. The pipette is an ordinary 10 c.c. or other volume pipette, with a small orifice blown on the top side of the upper end. The operator opens the top pinchcock to allow the broth to fill up the pipette to the zero mark. The top pinchcock is then closed and the bottom one opened to allow the broth to run off in the required amount. The small orifice at the top of the pipette eliminates the possibility of a vacuum and allows the broth to flow freely.

If the operator holds the pipette so that the broth runs in at an angle (Figure II), there is no danger of loss of material through the orifice. With a small amount of practice the operators can run off tubes with great facility.

Such a set-up may be used with any

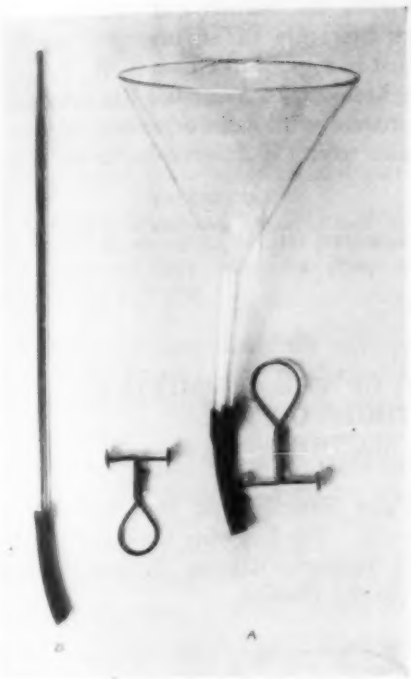


FIGURE I

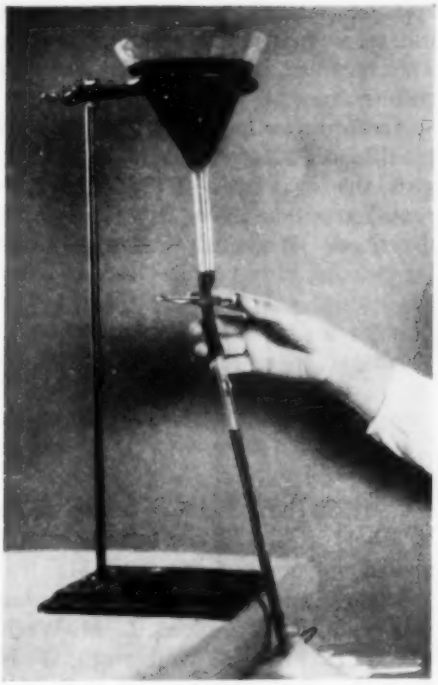


FIGURE II

sized pipette, Mohr or transfer, and with any funnel. We have found by actual timing that we can run off a given batch of tubes with this arrangement in about one-eighth of the time usually consumed, with equal or greater accuracy.

THE CAUSE OF MUSTINESS IN EGGS

M. P. SPANSWICK, F. A. P. H. A.

Bacteriologist, State University of Iowa, Iowa City, Ia.

WHILE making bacteriological examinations of eggs for a commercial packing concern in Des Moines, Ia., the author isolated an organism which is the causal agent of " must " in eggs. Commercially, musty eggs present a real problem, since one such egg will render all with which it comes in contact unfit for use in the preparation of food products.

The organism is a very small, motile, Gram-negative, aerobic, non-sporulating bacillus, growing profusely on agar in 5 days at room temperature, but not at 37° C. It produces a very characteristic musty odor. It does not liquefy gelatin, reduce nitrates, produce indol, or change litmus milk. Although moderately acidophilic when first isolated, repeated subculturing has gradually increased its alkaline tolerance. It still retains its ability to produce its characteristic odor.

Fresh eggs inoculated with broth cultures developed the typical musty odor in 5 days. No change was noted in the

appearance of the eggs except a slight iridescence in the white in some instances. The organism was recovered in pure culture from all the eggs inoculated.

According to the classification adopted by the Society of American Bacteriologists, the organism is of the *Genus Achromobacter* but differs from the species described. When this work was started in 1926 no mention had been made in the literature of an organism causing must in eggs. Since then A. W. Turner[1] of Melbourne, Australia, has described apparently the same organism. He proposes to call it *Achromobacter perolens*.

REFERENCE

1. Turner, A. W. *Australian J. Exper. Biol. & Sci.*, Vol. IV, 1927.

MINUTES OF THE MEETING OF THE COMMITTEE ON STANDARD METHODS OF THE LABORATORY SECTION

A MEETING of the committee was held at the Hotel Curtis, Minneapolis, on October 1 at 6:30 P.M. The following were present: E. O. Jordan, *Chairman*, R. G. Perkins, L. M. Wachter, W. H. Frost, A. Wadsworth, W. H. Park, N. MacL. Harris, and J. F. Norton, *Secretary*. Drs. Gilbert and Reddish were present as referees.

Dr. Ruth Gilbert, the referee on the Standardization of the Wassermann Test, presented a progress report dealing with comparative tests between the complement-fixation and precipitation methods. The report was presented in full at a session of the Laboratory Section. It was voted to recommend that an abstract * of Dr. Gilbert's report be published in the *American Journal of Public Health* and that permission be given her to publish in full, elsewhere.

Dr. Reddish presented a brief report as referee on the Standardization of Methods for testing Disinfectants. He recommended that his modification of Hygienic Laboratory Method be recommended by the Committee to the Association. No action was taken on the recommendation.

The report of C. T. Butterfield, the referee on Bacteriologic Methods for Water Examination, was discussed by items. The following summary includes all recommendations discussed except editorial changes.

Recommendation—That the mouth end of all pipettes be protected with cotton plugs. *Approved.*

Recommendation—Increase in the temperature for sterilization of glassware. *Approved as follows:* The temperature should be 170° C., except where it is known by means of recording thermometers that the oven temperatures are uniform, under which exceptional condition 160° C., may be used.

Recommendation—Specification of Witte's peptone in place of Fairchild's. *Approved.*

Recommendation—Omission of the "dilution ratio method" for the determination of the pH. *Approved.* Buffer solutions should be checked with a potentiometer not less than once a year. If molds are present the buffer should not be used.

Recommendation—That the reaction for media be changed to a pH of 6.6 to 7.2 or 7.4. *Change approved to read:* 6.4 to 7.0.

Recommendation—In the preparation of nutrient agar to omit "cool to 45° C. . . . without stirring." *Approved.*

The present formula for Endo medium was *approved* but it was suggested that an optional formula be given.

Recommendation—That "under no conditions should distilled water be used for dilution." *Approved.*

Recommendation—That the specification "Gram negative" be eliminated in the definition of organisms of the coli-aerogenes group. *Not approved.*

* See page 47 of this issue.

Recommendation—That only one typical colony required to be picked for the completed test. *Approved to read:* "one or more."

Recommendation—That the paragraph on the interpretation of results in the coli-aerogenes group be omitted or modified. Committee *approved* the *re-writing* of this paragraph.

Recommendation—That the section giving methods for differentiation of fecal from non-fecal members of the coli-aerogenes group be omitted. *Not approved.*

A majority of the committee was opposed, at the present time, to the inclusion of Brilliant Green Bile as a standard medium.

Changes in the following chemical methods were presented but action was withheld until the exact procedures could be formulated—manganese, rapid boiler water analysis, chemicals used in water purification, iodides, turbidity, phenols, settleable solids in sewage, total solids in sewage, fixed and volatile sulphides.

No report was received from the referee on Microscopic Methods.

It was agreed that some mention should be made of methods for the examination of swimming pool water.

It was tentatively agreed to change the method for the preparation of standard lactose broth so that after the addition of the portion of water the medium should be of the approximate composition now regarded as standard.

A complete report concerning the methods for reporting the numbers of coli-aerogenes group organisms will be prepared during t' e coming year.

It was voted to request permission from the Surgeon General of the U. S. Public Health Service to publish the report of the "Advisory Committee on Official Water Standards" as a supplement to the next edition of *Standard Methods of Water Analysis.**

The following referees were appointed:

Chemical Methods for Water Analysis
A. M. BUSWELL
Microscopic Methods for Water Examination
GORDON M. FAIR
Bacteriologic Methods for Water Examination
C. T. BUTTERFIELD
Bacteriologic Methods for Milk Analysis
R. S. BREED
Chemical Methods for Milk Analysis
F. C. BLANCK
Standardization of the Wassermann Test
RUTH GILBERT
Shellfish Analysis
F. P. GORHAM
Air Analysis
LEONARD GREENBURG
JOHN F. NORTON, *Secretary*

* This permission has been granted. J. F. N.

VITAL STATISTICS

LOUIS I. DUBLIN, PH. D.

Maternal Mortality in the United States—The maternal mortality rate for the United States is comparatively very high and has declined but slightly during the past decade. The Maternity and Infancy Act was passed in 1921. In that year, deaths of women from puerperal causes were 68 per 10,000 live births and in 1927 had declined to 65 per 10,000 live births. The decline was slightly greater in the rural than in the urban area. Puerperal septicemia accounted for 40 per cent of all puerperal deaths in the United States in 1927, the rate being 25 per 10,000 live births as compared with 16 for England and Wales and 19 for Scotland.

The U. S. Children's Bureau has begun an investigation of maternal deaths in 15 states in response to requests from state departments of health and state medical societies. A preliminary report has been made of the investigation of the 1927 maternal deaths for 7 of the states. There were 1,256 maternal deaths reported and 480 of these were due to puerperal septicemia. Abortions preceded 42 per cent of the deaths from septicemia and 87 of the 200 septic abortions were self induced. There were also 99 deaths in which abortion was a factor, or a total of 299 abortions for the 1,256 maternal deaths in the 7 states.

Reports were also made of the findings in Nebraska and Maryland for 1927. The infant mortality rate for Nebraska in 1927 was 51 per 10,000 live births. The maternal mortality rate was 59 per 10,000 live births in Nebraska in 1927 as compared with 65 for the whole birth registration area. The rate for the urban area was 92 per 10,000 live births and 49 for the rural area. First pregnancies showed a maternal mortality rate of 71 per 10,000 live births as compared with 51 for later pregnancies. In Nebraska, less than one-half of the maternal deaths followed births of living children, more than one-fourth followed abortions and about one-seventh followed stillbirths. For Maryland, the infant mortality rate was 81 per 10,000 live births in 1927; 68 for white infants and 134 for negro. The maternal mortality rate for the white race in Maryland in 1927 was 54 per 10,000 live births and 72 for the negro. There were 187 maternal deaths reported and the results of the analysis for the white race in Maryland were very similar to those for Nebraska.—D. C. Mendenhall, *Med. J. & Rec.*, 130: 407–408 (Oct. 2), 1929.

Scarlet Fever—It is a well known fact that scarlet fever is a disease of temperate countries, being specially prevalent in the countries of the north and very rare in the tropics. There has been a recent increase of the disease in Europe, specially in Eastern Europe. In the U. S. S. R., the number of cases rose from 33,263 in 1921 to 75,718 in 1928. For some years, the prevalence of scarlet fever has been increasing in the United States. In 1925 there were 135,937 cases among a population of 86,571,000 in those states where the disease is notifiable; in 1926 there were 143,150 cases, and in 1927, 158,978 cases in a population of 90,482,000. For selected countries of Europe, America, Asia and Australia, a considerable increase has been observed since 1922, when there were 473,328 cases, the max-

imum having been reached in 1927, with 833,647 cases.

The scarlet fever case rate has shown a general tendency to diminish in Western Europe during the last 30 years. In Germany the decline was particularly marked between 1901 and 1917 and since then seems to have reached a stabilized level. The same applies to Belgium, France, Spain and Switzerland. The minimum case rate in the Scandinavian countries was reached after the great epidemics of the middle of the last century. In Italy, the scarlet fever case rate shows a tendency to stabilization though considerable fluctuations occur. On the other hand, in Eastern Europe the case rate is increasing. The rate for Czechoslovakia has increased from 31 per 100,000 in 1920 to 146 in 1928 and for U. S. S. R. from 129 in 1921 to 255 in 1928.

There is no doubt that the case mortality rate is at present decreasing in most countries of Western Europe. In 1928, the mortality rate in Germany was 0.9 per 100,000 as compared with 3.1 in 1921; the rate in England decreased from 1.2 in 1920 to 0.7 in 1927. A decline from 2.5 in 1920 to 1.1 in 1927 has been observed for the United States. In Eastern Europe, the mortality rate is still very high. In 1928 it was 5.4 in Roumania and 3.5 in Czechoslovakia.

Similar declines were shown for the scarlet fever death rates in the various countries. Thus, in Germany the death rate fell from 3.2 per 100,000 in 1920 to 1.7 in 1928, in England and Wales from 3.8 in 1920 to 1.5 in 1927 and in the United States from 4.6 in 1920 to 2.1 in 1927. Again the highest rates for 1928 were observed in Eastern Europe, Roumania having a rate of 4.8, and Czechoslovakia 5.5 per 100,000.

The fundamental causes for this general decline in the scarlet fever case rate and death rate are the mass immunity brought about by great epidemics during the last century and the improvement in the living conditions of the poorer classes.—*Epidemiological Report of the Health Section of the League of Nations,* 8: 245–276 (July 15), 1929.

Results of Treatment of Diabetic Children—Prior to the discovery of insulin in 1922, diabetes in children was almost invariably fatal. Joslin treated 169 children who had diabetes from 1914 to 1922 and reported that one-third of them were still living at the end of the period. The experience at the Mayo Clinic was similar. From 1919 to 1922, 32 cases were treated and 21 deaths recorded. The survivors, 9 in number, benefited by insulin but 1 has since died. Thus, 70 per cent of the cases in the pre-insulin period resulted in death.

Insulin has changed the prognosis completely. In the first 6 years after its introduction, 167 children were treated at the Mayo Clinic, and a recent review of their progress showed that 147 were still living in 1928. They were all in good health except 3, 1 of whom had severe rickets and 2 who had unsatisfactory home care. There were 17 deaths in this series, a mortality of 10.4 per cent, which is a decided change from the pre-insulin mortality. In the last 3 years, about 4 per cent of the children have died.

Last year the annual mortality was 1.3 per cent, which is not much higher than the annual death rate for non-diabetic children. Of the 17 deaths, only 1 occurred at the clinic and this case was brought in moribund after 28 hours in coma. None of the other cases were under the immediate observation of the clinic; 8 had not been seen for from 6 months to 3 years. In 2 cases, death had occurred from influenza and encephalitis, diseases not related to diabetes. A third case died from meningitis but diabetic treatment had been neglected so that coma may have occurred termi-

nally. In all of the other cases, except 3 about which the information was incomplete, coma was the known cause of death and occurred from preventable causes such as failure to receive insulin, improper use of insulin along with carelessness in dieting and unsatisfactory medical supervision.—F. N. Allen, *Proc. Staff Meet. Mayo Clin.*, 4: 270–271 (Sept. 11), 1929.

Puerperal Septicemia in Massachusetts, 1928—This is a report of the committee appointed to study the incidence of puerperal septicemia in Massachusetts in 1928. The number of puerperal deaths reported for 1928 in Massachusetts was 456, and 123, or approximately 27 per cent, of these were due to puerperal septicemia. This is the lowest number of total puerperal deaths since 1912 and the lowest number of deaths from puerperal septicemia since 1916. Of the 123 deaths, 19 were due to puerperal septicemia in cases of abortion. The largest number of puerperal deaths were in March and the lowest number in September, and this seasonal distribution has been fairly constant over a period of a great many years.

From requests sent to physicians, 63 replies were obtained and 50 of these furnished sufficient data to use as a basis for this study. Primipara contributed 30 per cent of the deaths; para II, 32 per cent; and other multipara contributed from 2 to 12 per cent of the deaths. Of the 50 cases, 42 per cent died at home, 48 per cent in hospitals and 10 per cent did not report. There were normal deliveries in 54 per cent of the cases, instrumental in 6 per cent, 4 per cent were delivered by version, 2 per cent were undelivered, and 34 per cent did not report. Complications were present in 44 per cent of the deliveries and 28 per cent had no complications.

Adequate prenatal care was reported in 64 per cent of the cases, doubtful care in 14 per cent, no care was received in 16 per cent, and 6 per cent of the cases did not report. Of the total number of cases reported, 6 per cent were autopsied and the autopsy confirmed the diagnosis of puerperal septicemia.

The highest birth rate, 26.4, in the state during 1928 was reported from Woburn, which did not report any cases of puerperal septicemia, but did report 2 deaths in the puerperal state. Waltham and Fitchburg, with birth rates of 24.2 and 20.4 respectively, each reported 2 puerperal deaths but neither from septicemia. Newburyport and Melrose, whose birth rates were 21.6 and 20.4 respectively, reported no puerperal deaths. Brookline, whose birth rate, 3.1, was the lowest, did not report any puerperal deaths. The city of Boston did not report any deaths from puerperal septicemia in November, 1928, and 1 each in September and December, 1928.—*New England J. Med.*, 201: 470–473 (Sept. 5), 1929.

Public Health in Kenya—A report of conditions in the Colony and Protectorate of Kenya states that according to a census taken in 1926, there were 12,529 Europeans, 30,583 Asiatics and 10,577 Arabs in the colony. The estimated African population in 1927 was 2,847,632. Local native health councils have taken an increasing interest in health matters. On the coast, useful measures are being taken against hookworm infestation. The country has been free from epidemics of serious diseases. Plague required watching but no serious outbreaks occurred during 1927.

Smallpox was introduced from India and caused some uneasiness because the cases were observed over a considerable area. The outbreak did not assume any magnitude, no doubt due to the wholesale vaccination campaign conducted two years ago. The epidemic of mala-

ria experienced in 1926 did not recur. Over 200,000 individuals were examined for trypanosomiasis, and only 380 cases were detected, these being found in well defined areas. In one small locality of about 800 population, over 100 cases were found. Progress for provisions of loan funds for hospitals has not been so rapid as was hoped, but one small hospital is practically completed.—*Lancet*, 217: 312 (Aug. 10), 1929.

Official Vital Statistics of Scotland—The Health Organization of the League of Nations has published a handbook which describes the procedure of gathering vital statistics in Scotland. For the purpose of local health administration, Scotland is divided into burghs, county districts and counties. In the Lowlands and along the seaboard, local health services are well equipped with modern facilities and are excellently administered. The Census Act of 1920 became a permanent measure. It empowers the authorities to ask for a census at 5-year intervals. Prior to this, a special act was passed for each decennial enumeration. The Registrar General directs the census and the enumerators are selected by local registrars.

Births of living children must be declared to the registrar within 21 days by either of the parents, the medical attendant or some other appropriate person. The registrar has the authority to require this declaration personally or in writing within 3 months after birth. All births must be allocated to the parish of habitual residence of the parents of the child. Stillbirths must be notified as such by the attending doctor to the public health authority but not to the registrar. The mother of an illegitimate child is primarily responsible for the declaration of the birth. Such a child is legitimated by the subsequent marriage of the parents.

Deaths must be declared to the registrar by a relative of the deceased or other appropriate persons within 8 days. A medical certificate of the cause of death must be completed by the medical practitioner attending the person during his last illness. There is no specific procedure for transmitting these certificates to the registrar. The *International List of Causes of Death* as revised in 1920 has been in use since 1911. The Registrar General publishes an annual report that contains information relating to the mortality of the country.

There are 11 infectious diseases that are compulsorily notifiable, 6 more notifiable in certain areas only and 12 others optional. Notification must be made by the head of the family, medical attendant or other appropriate persons to the medical health officer of the area. Local authorities are required to provide proper and sufficient means for disinfection. Vaccination is compulsory and effective within 6 months of birth.

County, municipal and hospital bacteriological laboratories are established throughout Scotland. Special decennial supplements are published by the Registrar General and include all relevant statistical data such as occupational and infant mortality which appeared in the annual reports during the decennium. There are also published independent annual municipal reports prepared by the medical officers of health of the principal Scottish cities and burghs. Notable features of these reports are the results of special studies or investigations relating to diphtheria, puerperal mortality, cancer, infant mortality and similar special studies.—League of Nations: Health Organization, *Statistical Handbooks Series No. 13*, Geneva, 1929.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C. E.

ILLINOIS MOBILE WATER AND SEWAGE LABORATORY

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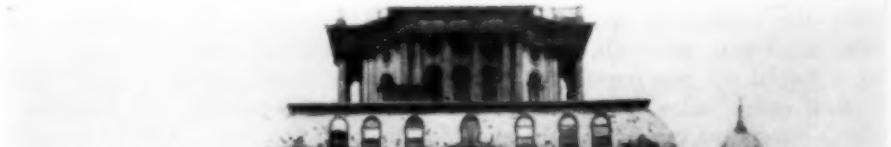
A COMPLETELY equipped mobile water and sewage laboratory was placed in service during the summer of 1929 by the Sanitary Engineering Division of the Illinois Department of Public Health. This laboratory will be used in carrying out the work and duties of the Department of Public Health in connection with water supplies, sewage works and stream sanitation, and will coöperate with the Sanitary Water Board established by an act of the 1929 legislature, of which board the Director of Public Health is chairman and the Chief Sanitary Engineer is technical secretary. The mobile unit will lead to more efficiency and economy in field analytical work and will make possible more complete analytical data than has been possible with previous field equipment.

The experience acquired by the Sani-



INTERIOR LOOKING TOWARD THE FRONT

tary Engineering Division in designing and operating a mobile milk laboratory, which was constructed and placed in service during 1927, proved very helpful in planning and equipping the mobile water and sewage laboratory. The mobile milk laboratory has proved so sturdy and satisfactory that the water and sewage laboratory was made substantially similar, with some additional refinements and the necessary changes in benches and equipment to make it suitable for the different kind of work.

By use of the mobile water and sewage laboratory the development and maintenance of public water works can be improved, especially the operation of water purification plants, so that waters will be more assuredly safe and, incidentally, more economical operation of some water purification plants will be possible. It will be especially valuable for studying and checking the operation, efficiency and effectiveness of sewage treatment works and for stream pollution surveys, in furthering the interests of stream sanitation and conservation. Some analyses of sewage and polluted streams must be made in the field if they are to be fully representative and valuable.

It has been very difficult and sometimes impossible in the past to handle such field analytical work without a mobile laboratory. Taking into consideration quality and quantity of work the mobile unit will make more economical such analytical work than has been possible with ordinary automobiles and boxed laboratory equipment, and there will be a saving on shipment of sample containers to and from the main Sanitary Engineering Laboratories at Springfield. It is estimated that the saving in traveling and transportation expense ordinarily incurred in the investigation of water and sewage works and polluted streams, as conducted in the past, will nearly compensate for the investment and operation cost of the mobile laboratory, and at the same time make possible more effective and reliable work. The cost, fully equipped, was only about $5,900.

Among the analyses and tests that can be made in the mobile laboratory will be odor, color, turbidity, ammonia nitrogen, nitrites, nitrates, alkalinity, acidity, pH, chloride, chlorine, iron, dissolved oxygen, oxygen consumed, biochemical oxygen demand, bacterial counts, *B. coli,* and microscopical examinations.

The mobile laboratory staff will generally comprise two sanitary engineers who have had experience in addition to technical school training on analyses of water and sewage. The water and sewage bacteriologists and chemists of the Sanitary Engineering Laboratories at Springfield will be available to advise with the sanitary engineers, and even to go into the field with the mobile laboratory when special investigations or studies require special bacteriological and chemical services.

The work that was scheduled for this mobile unit as soon as it was placed in the field, most of which was based upon requests from those that had heard that the unit was being provided, indicates that this unit will be in constant service. This might well be expected when it is realized that there are over 500 public water supplies and about 200 sewage treatment works in the state, and that many streams are now so polluted that they are threatening existing and future water supplies, destroying fish and other aquatic life, destroying cattle watering places, making unsafe and unusable important bathing and recreational water areas, and causing some nuisance from odors and appearance.

Although the extensive Illinois hard road system makes it possible for most of the mobile laboratory travel to be on excellent, even roads it was decided in planning the mobile milk laboratory in 1927 that the body should be of sturdy construction. This was again considered to be a wise plan and therefore a similar standard 21-passenger, street-car type, Dodge Brothers motor bus was selected as giving sturdy construction at reasonable cost. It is expected that both the milk and the water and sewage mobile laboratories will last and render service many years. The operating and maintenance cost data which have been kept in detail for the mobile milk laboratory confirm this opinion. The only important changes made at the Dodge Brothers factory from the standard bus was the omission of the seats, the installation of shades and fine mesh bronze screens on all windows, and a second wiring system.

In place of the passenger seats, laboratory benches were installed by the Kewaunee Manufacturing Company. One bench is 12 and the other is 9 feet long, providing ample and convenient drawer and cabinet space of suitable size, arrangement, and construction to hold securely the necessary equipment and supplies. Racks for reagent bottles were built in the place usually occupied by advertising racks in automobile passenger buses. All woodwork is of quarter-sawed oak with a pleasing, durable silver-gray stain and wax finish, except bench tops, which are of narrow birch strips matched, glued and treated with a black acid-resistant stain. The bench tops have special spring construction to prevent warping. Special consideration was given by the manufacturers to the strain of travel in the design and construction of the laboratory furniture.

There are dual wiring circuits. One circuit supplies 6-volt current from either the regular motor-generator-battery electric system or a special rectifier and battery system to the regular ceiling lights, an electric fan, and heating elements in the incubators. The other circuit was designed for 110-volt current and serves additional ceiling lights, 12 service outlets and a bacterial plate counter in the bench top, 6 service outlets on the uprights between windows, electric fans, movable electric room heaters, and a heating element in the

INTERIOR LOOKING TOWARD THE REAR

37.5° incubator. The 110-volt circuit can be used when that current is available at the water or sewage plants or where the laboratory is stationed, and can easily and quickly be connected by means of a 100-foot reel of insulated wire and feed plug carried in one of the cupboards having a covered hand hole from it through the bus body to the outside.

A 20° incubator is placed at the end of one bench and a 37.5° incubator, a gasoline stove and a drying oven are mounted on one bench top. An autoclave, water still, gravity dilution water bottle and rack, necessary gasoline and alcohol torches, and all miscellaneous equipment and glassware affording the most modern laboratory facilities, are provided. All equipment and supplies are installed or stored so as to be easily available with minimum time and effort of handling between laboratory set-ups. Seven burette rods are screwed into fittings in one of the bench tops. The burette rods and also the electric service outlet plates and sink faucet are chromium plated.

Running water is available at a white enameled sink built in one of the bench tops. The water is stored in a 30-gallon tank suspended from the car frame below the laboratory floor. Water and air pipe connections extending through the bus body make easy the filling of the tank with water and applying air pressure through the tire valve on the air-line. This makes it possible to obtain water and air pressure at any gasoline-filling station. A metal tank, mounted under the laboratory floor, equipped with suitable piping and valve, serves to store the waste sink water when and where it is not desirable to discharge such waste water directly onto the ground.

A door at the right front and another at the rear of the center aisle with folding step afford ready access and also facilitate passage of persons through the bus when it is used for educational or exhibit purposes.

The aisle is wide and long enough to accommodate folding cots, providing bed space for two persons. The cots can be stored in one of the bench

compartments. These sleeping accommodations will be valuable especially when running 24-hour tests on sewage works or if the mobile unit at any time is called into special service following disasters such as tornadoes and floods.

The interior can be heated by two floor heaters located in the aisle and operating on the engine exhaust, in addition to the movable electric heaters that can be operated off the 110-volt current when available.

In addition to making it possible to comply with the increasing requests to the Department of Public Health and the newly organized Sanitary Water Board, for water, sewage and stream analytical services, it is considered that the bringing of this mobile laboratory to water and sewage works throughout the state will serve to stimulate and bring about more and better local analytical control of such works, similar to the results obtained through the mobile milk laboratory visits to milk pasteurization plants. The Illinois Department of Public Health believes that this mobile water and sewage laboratory is equal in design and equipment to any operating in the United States and will be a factor in maintaining public health work in Illinois on a high scientific standard.

Changes in Composition of Gas during Digestion of Fresh Solids—The changes in the composition of the gas produced during the course of digestion of fresh solids were considerable. The CO_2 varied from 37.7 per cent during the first week to 25.3 per cent at the end. The methane content varied likewise from 47.8 to 69.8 per cent. For practical purposes 80–85 per cent of the total gas produced is the practical limit. If 10 per cent more gas is required, the digestion time must be increased by 25 per cent and to get all the gas the digestion time should be doubled. When 80–85 per cent of the gas has evolved the sludge is stable and has only a "gas odor" and drains well.—W. Rudolfs, *N. J. Agri. Exper. Sta. Bull.*, 486: 54–59, 1929. Abstr. W. Rudolfs.

Providing Sewer Facilities in Rural Communities—Chapter 165 of the Session Laws of Kansas, 1927, provides for installation of sewers and sewage disposal in rural and suburban communities. The application of the act to the Douglas County Sewer District No. 1, adjacent to the city of Lawrence, Kans., is described. In this case a contract was made whereby the City of Lawrence disposes of the sewage on payment of $50 for each residence connected to the sewer system, and also on payments to reimburse the City of Lawrence for building and rebuilding certain main sewers within the city. Furthermore, all real estate within the sewer district is taxed to support the system at the same tax rate that prevails in the City of Lawrence for sewerage purposes. The district agrees to abide by whatever ordinances prevail in the city relating to exclusion of troublesome substances to the sewer and to plumbing restrictions.

Other notable examples of sanitation districts are mentioned, including the Los Angeles County Sanitation Districts and the Chicago Sanitary Districts.

The article states that the law that provides for the creation of the district contains "the basic elements of a most needed and useful instrument. The refining effects of protests, court actions, experience of use, and legislative amendments, are needed now to make it applicable to all cases that may arise."—E. F. Kindsvater, *Munic. News & Water Works*, 76, 7: 297–298 (July), 1929. Abstr. C. G. Gillespie.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M. D., AND LEONARD GREENBURG, PH. D.

Report on 1,000 Physical Examinations of Male Clerical Workers. Conclusions—Complete physical examination of 1,000 white male office workers of ages 25 and under to 65 and over revealed that 781 possessed significant physical defects. Minor physical defects only were noted for 213 men. Those essentially free from physical defects numbered 6. In rank of numbers of examinees involved, defects of dentition, weight, vision, cardiovascular system and hearing in the order named were outstanding.

In view of the apparent causes predisposing to heart disease around 40 years, these findings are significant: Among 1,000 male office workers, 1.6 per cent had albuminuria and 1.9 per cent had glycosuria; hypertension was found for 12.9 per cent; and hypotension for 13 per cent; overweight was common to 42.3 per cent. Among all examinees the rate for cardiovascular defects was 36.1 per 100, but among those 20 lb. or more overweight the rate was 49.1 while among those 20 lb. or more underweight the rate was 32.8 per 100. It is also noteworthy that one-third of all cardiovascular defects were found in men under 45 years. Not to be overlooked were 5 per cent with heart murmurs and 12 per cent with definite heart enlargement.

In a large number of instances defects were discovered in this study which were leading to or eventually would lead to serious physical handicap. Such conditions were unknown to 724 men who possessed them, or at least they did not admit knowing of them. Finally, the examination records of the whole group definitely indicated that 80.5 per cent would profit by early medical care.—William H. Muhlberg, Carey P. McCord, Floyd P. Allen, Special Paper (in mimeograph form), read before the Industrial Hygiene Section of the American Public Health Association at the Fifty-eighth Annual Meeting at Minneapolis, Minn., October 3, 1929.

Copies available from Dr. Carey P. McCord, 34 West 7th Street, Cincinnati, O.

History of Workmen's Compensation Laws Covering Occupational Diseases—Some light on the obstacles which have been met with in the attempt to draft, pass, and perfect workmen's compensation laws is obtained from a study of their development in various countries. The fact has to be borne in mind that the original purpose of compensation laws was to provide, promptly, adequate economic relief and medical care to workmen disabled because of, and in the course of their employment by injuries due to the nature of their work. The laws, therefore, proposed a scheme whereby expensive and discouraging delays might be eliminated and the adjustment reached without recourse to legal hair-splitting. The two earliest laws covering employers' liability for industrial accidents were passed by Switzerland in 1877 and Germany in 1883, and these provided for the inclusion of industrial diseases. Disability to work is the only manifestation of occupational injury which is compensable under the law and disability from disease often does not ensue for several months, sometimes for years. The greatest confusion has resulted from the attempt to hold the employer liable for ill health among his workmen which has

been " aggravated " by the nature of the work. The settlement of straight out-and-out occupational disease claims has become a minor portion of the question.

Most of the forms of workmen's compensation acts may be classified thus:

1. Laws which definitely include occupational diseases, either by a schedule naming the diseases, a schedule relating diseases to definite processes, or having no schedule of diseases or processes
2. Laws whose wording is such that diseases are compensable in the same manner as industrial accidents
3. Laws which definitely exclude diseases except those which result from an accidental injury

The paper then discusses the laws of the following countries as they relate to compensation matters, particularly in reference to industrial diseases: Switzerland, Germany, Austria-Hungary, France, Greece, Belgium, League of Nations, Union of Socialist Soviet Republics, Finland, Italy, Spain, Portugal, Serb, Croat, Slovens Kingdom, Great Britain, British Dominions.

Concerning the United States the material is in the form of a table which shows that 4 states (Arkansas, Florida, Mississippi, and South Carolina) have no compensation laws, also one Canadian Province, Prince Edward Island; that 31 states, 2 Canadian provinces and 2 territories exclude occupational diseases from their compensation laws; that 3 states and the United States (civil employees), and 1 territory have laws which might be interpreted to include them; and that 9 states and the United States (longshoremen and harbor workers), and 2 territories, also 7 Canadian provinces, definitely extend compensation to occupational diseases.

The report concludes with a synopsis of the provisions for workmen's compensation laws in the various states in the United States; provisions for reporting occupational diseases, and suggestions for the future work of the committee.—Report of the Committee on Standard Practices in the Problem of Compensation of Occupational Diseases, presented to the Industrial Hygiene Section of the American Public Health Association at the Minneapolis meeting, October 4, 1929, 40 pp., 1 table.—Dr. A. J. Lanza, *Chairman,* c/o Metropolitan Life Insurance Company, New York, N. Y.

Tentative List of State Regulations, Orders, Advisory Pamphlets and Labor Laws Relating to Safety in Industry (arranged by states of the United States)—Library, National Bureau of Casualty and Surety Underwriters, 1 Park Avenue, New York, N. Y.—18 pp. mimeographed Nov., 1929.

The Health of Workers in Dusty Trades. II. Exposure to Silicious Dust (Granite Industry)—A few years ago, the U. S. Public Health Service began a series of intensive studies on the health of workers in dusty trades. The first study was reported in 1928, and dealt with the health of workers in a cement plant. The report on the second study, dealing with the health of workers exposed to silica dust in the granite cutting industry, has recently been published. The study was of such a character as to present a rather definite picture of what happens to men working for many years under a dust hazard of the extent described. The salient points may be summarized as follows:

a. The long period of service before the liability to tuberculosis becomes manifest (generally 20 years or more)
b. The sharp correlation between length of exposure to the dust and the prevalence of tuberculosis and also the death rate from this disease
c. The close relation between the extent of dust exposure and health of the men
d. The universal occurrence of silicosis among the workers
e. The large proportion of workers finally succumbing to tuberculosis
f. The almost invariably fatal form of the

disease within a short time after the onset

g. The different character of silicosis as manifested by X-rays compared with that shown where there is exposure to a dust with a much higher content of free silica

h. The location of the tuberculosis lesion, usually basal, where the disease complicates silicosis

i. The absence of deaths from silicosis *per se*, tuberculosis apparently always intervening

j. The failure of workers to recover from their condition upon going into non-dusty trades

k. The high incidence of sickness of a severe nature from causes other than tuberculosis

l. The rising sickness and mortality rates from tuberculosis due to longer use of the hand-pneumatic tool

m. The high death rates at the present time from tuberculosis, compared with normal industrial experience

X-rays, micro-photographs of the lungs, detailed histories of cases, discussions and statistical findings accompany.—*Pub. Health Bull. 137*, 1929, 209 pp.

Industrial Dental Service—A study of physical defects in a group of 16,000 individuals, published in 1925 by Dublin, Fisk, and Kopf, showed that over 8 per cent had decayed teeth or infected roots; over 15 per cent infected gums or pyorrhea; and almost 42 per cent heavy dentistry which warranted X-ray examination. Above all does the average individual need frequent counsel and guidance regarding his teeth.

In an organization of 1,000 employees, a single chair, a part-time dentist, and a full-time hygienist may be sufficient to do prophylactic work, extractions, and minor filling operations—clerical assistance should not be overlooked. The cost of chair, including cuspidor and engine, and of instruments is about $1,500. X-ray equipment would approximate an additional $800. Proper record forms should be used (and samples of these are exhibited).

In the experiment of the Metropolitan Life Insurance Company in which 1,000 good mouth conditions were compared with 1,000 poor mouth conditions, the following diseases or conditions were all more pronounced (in some cases triply so) in the case of the latter: neuralgia and neuritis, headache, nervousness, colds, furuncles, abscesses, and albuminuria. A brief discussion is given of the dental service conducted by the Metropolitan Life Insurance Company; the United Railways & Electric Co., Baltimore, Md.; the Sullivan Machinery Company, Claremont, N. H.; the National Lamp Works, General Electric Company, Cleveland, O.; Jordan Marsh Company, Boston, Mass.; Corning Glass Works, Corning, N. Y.; the Union Health Center Dental Clinic, New York, N. Y.; and the Hood Rubber Company, Watertown, Mass. The most extensive of these appears to be that of the Union Health Center Dental Clinic, which is conducted by the New York locals of the International Ladies' Garment Workers' Union, whose work in 1927 included 9,338 X-rays, 11,548 prophylaxes, 2,575 general treatments, and 16,709 other treatments—making an average of 625 patients per day, the charges ranging from $4.00 to $5.00 an hour and cost of materials. (The article gives a list of the 12 institutions where dental hygienists are trained and a list of some 90 companies which have industrial dental dispensaries in the United States and Canada.)—Metropolitan Life Insurance Company, Special Pamphlet, *Industrial Dental Service*, Ill., *Industrial Health Series No. 3*, 1929, 31 pp.

Industrial Disease Investigation Bureau—The bureau began operating January 1, 1929, and reports for the period to June 30, 1929. It employs a field director, a medical director, a technician and laboratory expert, a consulting chemist, and a consulting pathologist.

The New Jersey State Law provides

for compensation for: anthrax; poisoning by lead, mercury, arsenic, phosphorus, wood alcohol, and chrome, benzene and its homologues, and all derivatives thereof; caisson disease; and mesothorium or radium necrosis.

Under "Investigation," 29 plants were covered, 10 using benzene or its derivatives (dyes, perfumes, chemicals, and artificial leather—despite the fact that the Department of Labor has recommended that benzene be eliminated in industry due to its poisonous qualities, in which most plants have concurred); 11 using lead and its products (smelters, making of reflectors, storage batteries, chemicals, pottery, colors, and tetra-ethyl lead); 7 using mercury (hat factories, chemicals, thermometers, and storage batteries), and 1 using chrome. It was quite evident that chronic mercurial poisoning still exists in hat factories since tremors (shakes) were common in a large proportion of the men seen in the shops.

Physical examinations in plants covered 89 workers exposed to benzol (10 showing strongly suggestive symptoms), and 21 exposed to lead (8 found to be suffering from active lead absorption despite the fact that they were wearing respirators).

Concerted effort has been made to spread knowledge of occupational diseases among physicians, employers and employees, both concerning occupational diseases and the special clinic set up for their investigation in Newark. This clinic provides free laboratory work and other diagnostic facilities, and makes diagnoses which are available to the family physician, but no treatment is attempted. A museum is contemplated. An accompanying table shows that for the first 6 months of 1929, 184 patients were examined at the clinic, 321 tests made, 230 blood counts, 11 urinalyses, 5 tests for lead in urine, 1 test for lead in the feces, 2 for blood Wassermanns, 13 tests for mercury in urine, and 59 tests for coagulation and bleeding time. These concerned 106 patients exposed to benzene, 27 to lead, 14 to mercury, 1 with phosphorus and 6 undiagnosed. In addition services were offered non-occupational cases at the Newark City Hospital, involving 36 patients suffering from various blood diseases, like pernicious anemias, malaria, leukemia, etc., with corresponding tests, blood counts, etc.

In summary: 24 plants were visited for inspection of processes, etc.; 122 workmen were examined in 4 plants for lead and benzol; while Dr. Henry H. Kessler, the Medical Director, made 203 physical examinations.

On page 33 of the *Bulletin* is a table of 99 poisonous and 274 corrosive substances and 150 occupational diseases, by causes, which were compensated in 1928. Under "occupational" are included certain poisons, compressed air, dust, infections, heat and light, and activity (cellulitis, etc.).—Joint Report of the Industrial Disease Investigation Bureau, New Jersey Department of Labor, *Indust. Bull.*, 3, 9: 11–15 (Sept.), 1929.

Some Physiologic Reactions to Cooling Power during Work—With Special Reference to Evaporation of Water—Among other points the authors point out that removal of clothes during work reduced evaporation from the skin and so did wind. In moist and moving air at 10°, 15°, and 20° C., the amount from the skin was often nearly nil. It is suggested therefore that greater use should be made of the removal of clothing and movement of air to render conditions comfortable for indoor muscular workers.—J. Argyll Campbell and T. C. Angus, *J. Indust. Hyg.*, 11: 315–327 (Nov.), 1929.

Effect of Carrying Loads—Curvature of the spine, as well as inguinal hernia and flat feet, has been observed among persons employed in carrying

loads. Steinmann of Berne and Waegener of Moscow state that under certain circumstances a shock or a false step is sufficient to overcome the resistance of the spinal column of a worker carrying a load, which may injure the whole column or the most exposed vertebra. This occupation shows high statistics of accidents, a considerable proportion of which affect the spine. The risk of disease varies directly with the size of the load; consequently, legal regulation of the weight of loads would mark an important advance in the prevention of accidents and occupational diseases of the type described. The International Labour Organization is called upon to draft an international Convention fixing the maximum weight of loads to be carried at 75 kilograms (165 lbs.).—*Industrial and Labour Information,* International Labour Office, Geneva, XXIX, II: 334–335 (Mar. 18), 1929.

The Problem of Displaced Workers—

1. Workers dispossessed by the introduction of labor saving machinery and the rationalization of industries do not easily find new employment, as 45 per cent of 754 workers in Baltimore, Md., Chicago, Ill., and Worcester, Mass., had not found employment when seen by investigators.

2. Of those who found new employment, more than one-half had been idle for more than 3 months.

3. Less than 10 per cent of those surveyed were reëmployed at their old jobs; two-thirds went into entirely different industries.

4. Only about 15 per cent went into the rapidly growing "newer" industries and service trades.

5. About one-half of those finding new jobs succeeded in getting tasks which were similar to those formerly held.

6. A large majority of dispossessed workers supported themselves and families during the early period of unemployment by accumulated savings. Approximately one-third found temporary work.

7. Transition from one job to another was in most cases made with a sacrifice of income, as almost one-half took new jobs at lower wages, while 18 per cent benefitted by the change, and one-third experienced no change of income.

8. The age of the worker appears to be a significant factor in securing new work, as relatively fewer of those over 45 years of age were able to secure new jobs as compared with the younger workers, and they were out of work for longer periods at a time.

In order to deal with this form of unemployment a greater perfection in employment exchange system is needed and some form of unemployment insurance is urgently required, but the government's participation in the latter is considered neither necessary, nor advisable at the present time.—Institute of Economics, Brookings Institute, Washington, D. C., *Industrial and Labour Information,* XXXI, II: 344–346 (Sept. 9), 1929.

Status of Industrial Safety Regulations—In an effort to obtain a statement as to the specific safety codes or regulations in force on January 1, 1928, in the various states, the U. S. Bureau of Labor Statistics communicated with each state and received replies from all except two. It is impossible to present a summary of the information obtained by the U. S. Bureau of Labor Statistics. Suffice it to say that an excellent digest is presented showing the status of safety codes in the various states. Those interested in obtaining information as to the status of safety codes throughout the United States are referred to this paper for an excellent summary of the subject. —U. S. Dept. Labor, *Month. Labor Rev.,* 28, 3: 521 (Mar.), 1929. L. G.

How Chemistry has changed Industry, and as a result has changed the Tendency to Occupational Disease—G. D. Gehrmann, Medical Director E. I. du Pont de Nemours & Co. U. S. Bureau of Labor Statistics, *Bull. No. 485,* 125–129 (June), 1929.

FOOD, DRUGS AND NUTRITION

WALTER S. FRISBIE

Nutritive Value of Proteins in Certain Kinds of Sausage and Other Meat Food Products—The importance of sausage is emphasized by the fact that sausage and sausage casings in the amount of more than 1⅓ billion lb. were manufactured in the United States in 1925 exclusive of that made by small dealers and farmers.

Sausage as defined by the U. S. Department of Agriculture is made from meat and meat by-products obtained from cattle, sheep, swine and goats, the meat obtained chiefly from trimmings of swine and cattle carcasses; condiments are used, and a small amount (not more than 3.5 per cent) of cereal may be added.

Previous investigations by the authors have shown considerable difference in protein values in the meat and meat by-products and this work was undertaken to compare the nutritive value of the different types of sausage and meat food products. Six different types of sausage were studied in addition to headcheese, scrapple and meat loaf, and for purposes of comparison fresh pork ham and beef chuck, all obtained from federal meat inspected establishments. Descriptions of the different types of sausage and the meat food products are given.

Young male albino rats were fed the various rations for 60 days, the animals being weighed twice weekly and records kept of the food consumed. Protein was fed at a 10 per cent level and the meats were supplemented by essential dietary factors including mineral salts. Complete tables are given showing the feeding experiments for both the 30- and 60-day periods.

For comparison, meat food products were divided into three groups—first, those of the highest nutritive value, pork sausage, Braunschweiger-style sausage, and meat loaf; second, intermediate values, Frankfurter-style sausage and Bologna-style sausage, and scrapple from one manufacturer; third, the low nutritive values, liver sausage, headcheese, and fresh link sausage, and a sample of scrapple. In the first group, the gain in weight per gm. of protein consumed is from 3.08 (pork sausage) to 3.47 (meat loaf), compared to 2.93 gm. to 3.68 gm. beef chuck and fresh ham. In the second group, gains per gm. are from 2.34 (Frankfurter-style sausage) to 2.87 (scrapple), and in the third group corresponding gains were 1.58 (headcheese) to 2.25 (liver sausage).

At the end of the 60-day period the groups were rearranged, first, including pork sausage, Braunschweiger-style sausage, meat loaf, Frankfurter-style sausage and one sample each of Bologna-style sausage and scrapple; second, one sample each Frankfurter-style sausage and Bologna-style sausage, and the third included headcheese, fresh link sausage, liver sausage and one sample of scrapple.

Weight gains per gm. protein were: Group 1, 2.41 (Braunschweiger-style sausage) to 2.73 (pork sausage) compared to 2.32 (beef chuck) to 2.75 (pork hams); group 2, the range is 1.96 to 2.30 (Bologna-style sausage), and group 3, 1.51 (headcheese) to 1.95 (fresh link sausage). The material differences in nutritive values warranting the classification into groups apply to the samples tested and not generally.

Two lots of scrapple showed a difference in gains of 1.77 and 2.52 respectively, due probably to the greater proportion of lean meat in the second sample which compares favorably with beef chuck and is attributed to the supplemental relationship between meat proteins and those of corn meal.—Ralph Hoagland and George G. Snider, *J. Agri. Res.*, 39: 531 (Oct.), 1929.

The Pellagra-Preventive Action of Canned Salmon—Previous observations have been recorded on the black-tongue-preventive action of canned salmon in the dog (Abstr., *A. J. P. H.*, 18: 1183 (Sept.), 1928). Evidence that canine blacktongue is analogous to human pellagra led to the comparative study of canned salmon on pellagra patients in the Georgia State Sanitarium, Milledgeville, Ga. A total of 18 white female patients were under observation and were treated with this diet for a period of 1 year or more. Alaska chum salmon was used and the entire contents of the can were incorporated in the cooked vegetable portion of the diet.

Six ounces of salmon per patient per day were fed. No patient in the group at any time during the test showed symptoms of pellagra, which warrants the conclusion that canned salmon contains the pellagra preventive factor. This is further evidence of the analogy between human pellagra and blacktongue in dogs.—Joseph Goldberger and G. A. Wheeler, *Pub. Health Rep.*, 44: 2769 (Nov. 15), 1929.

Do Baking Powder Residues Exert Injurious Effects upon Growth and Nutrition?—References are made to the conflicting statements in the literature particularly by recent investigators on the effects of compounds of aluminum on the human organism. References are also given as to the adverse effect of tartrates. On account of this uncertainty the authors have undertaken this work to determine the possible injurious effects of certain baking powder constituents.

Three different types of baking powder were studied—those in which the acid reacting agents were (1) a tartrate, (2) calcium acid phosphate, and (3) calcium acid phosphate and sodium aluminum sulphate.

Young rats in 4 groups were placed on a diet complete in dietary factors and varied only in respect to the addition of the baking powder ingredients in 3 groups, the fourth serving as a control.

The powders added conformed as closely as possible with the manufacturer's directions, corresponding correction being made for the food materials used. Carefully mixed ingredients were made into a dough, rolled thin and baked at a temperature of 230° C. The bread was readily consumed by the rats and given *ad libitum* with the addition of 20 gm. head lettuce per rat every 4 days. At the end of 220 days certain animals were bred and the young at weaning were put on identical diet except that in each group the proportion of baking powder to food was doubled. At the end of the feeding test both generations were killed, blood analyzed for non-protein nitrogen; kidneys were weighed and examined histologically.

Complete tables are given for both generations as well as graphs showing the growth curves. Food consumption was relatively high but kidney weights indicated no hypertrophy. Microscopical examination of kidneys showed no difference between the controls and those on the baking powder diets. No differences were noted between the non-protein nitrogen of the blood except in one isolated individual. Growth curves for all series show normal gain in weight except that those on the phosphate powder gained slightly less than the rats of the corresponding sex on the other three rations, but the difference is insignificant. Even more rapid growth was

noted in rats of the second generation consuming twice the amount of baking powder.

Compared to a 70 kilo man the amount of powder ingested by the rats would approximate 42 gm. P_2O_5 in the phosphate powder, 8.9 gm. P_2O_5 and 2.5 gm. Al in the phosphate and aluminum powder and 30 gm. of tartaric acid in the tartrate powder. In this connection it is noted that the largest dose of aluminum employed by the Referee Board was 1 gm. per day.

Reference is made to the report of Schaeffer, *et al., Bull. Soc. Sci. d'Hyg. Alim.*, XVI, 1928, on a sodium aluminum sulphate and calcium acid phosphate baking powder attributing to the ingestion of this ingredient such effects as gastric evacuation, intestinal ulceration, diarrhea, and inhibition in growth.

The report also stated that rats less than 90 gm. weight were not resistant to the baking powder, but in the present work most of the rats were under 65 gm. when the diets began.

Discrepancies are attributable to excessive amounts of baking powder used by Schaeffer, one diet containing 15 per cent, since a similar proportion of necessary dietary factor such as salt might produce untoward results. The conclusion is reached that with the types of baking powder employed and in the proportions stated there is no evidence of any deleterious effects whatsoever on the experimental animals and that they are comparable in every way to the control rats.—William A. Rose and Florence L. Catherwood, *J. Nutrition*, 11: 155 (Nov.), 1929.

Vitamin A Content of the Green and White Leaves of Market Head Lettuce—It has been previously shown (*A. J. P. H.*, 17: 1193 (Nov.), 1927) that the vitamin A content of head and leaf lettuce varied with the greenness of the leaves. The experiment here reported was undertaken to show the degree of differences in vitamin A content in outer green leaves and inner white leaves.

California head lettuce of the Iceberg variety, purchased in a market in Kansas, was used. Only leaves which were totally unfit for human consumption were discarded, and the heads were wrapped in damp cloths and kept in a refrigerator.

Albino rats, 4 weeks old and of similar weights, were used. When the stored vitamin A was depleted, the animals were given, in addition to the vitamin A-free diet, weighed amounts of inner white leaves and of outer green leaves and growth was observed for 8 weeks.

It was found that the green outer leaves of head lettuce contained 30 or more times as much vitamin A as equal weights of the white leaves, the unit for the dark leaves being between 0.015 and 0.02 gm., and for the white, 0.6 gm.—Martha M. Kramer, Gladys Boehm, and Ruth Esther Williams, *J. Home Econ.*, 21: 679 (Sept.), 1929.

PUBLIC HEALTH NURSING

EVA F. MACDOUGALL, R. N.*

Qualifications for Industrial Nurses—Florence Swift Wright, R.N., has written *Industrial Nursing*, a book which is a classic in this specialized field of public health nursing; yet of 15 industrial nurses who gathered at a dinner in a middle western city a short time ago, not one had ever heard of the book.

As Miss Wright says, most industrial nurses enter the plants of their employers by way of the first aid rooms. There are still some school nurses who do nothing but first aid work, but the school authorities are fast learning that first aid is only one of the ways in which the school nurse finds opportunities for service; and the time is coming when industrial concerns will find that the value of the industrial nurse to both employer and employee steadily increases as she enters the field of prevention.

The New York State *Health News* for October 21, 1929, states that at the New York State Annual Conference of Health Officers and Public Health Nurses, Grace M. Heidel, Supervisory Nurse for the New York Central Railroad lines, drew up some conclusions regarding the qualifications for nurses doing public health work in industry. They are:

1. Minimum course in public health nursing with practical field work, if possible (4 months at one of the universities giving an approved course in public health nursing, or 8 months on the staff of a public health nursing association under good supervision is the minimum standard set by the National Organization for Public Health Nursing).
2. Understanding of the principles of social service and mental hygiene.

The young nurses just out of training, to say nothing of the practical nurses many industries consider satisfactory, have had no chance to acquire these minimum qualifications for their positions. Of 26 industrial nurses present at the meeting where Miss Heidel spoke, only 2 had had any training in public health, and only 3 had done any visiting nursing. Two were not even registered nurses.

Despite the fact that there are wide fields in the ranks of industry for public health nurses to teach the workers how to care for their own health, these opportunities are almost everywhere apparently being lost, either because the industrial nurses themselves do not see what is lacking or because the employer has never been shown what a real preventive program carried out by a real public health nurse could do for his plant.—Florence Swift Wright, *Industrial Nursing*, 1928, p. 7. *Health News*, New York State Department of Health, Qualifications for Industrial Nursing, 167 (Oct. 1), 1929.

The Passing of Anna McGee—a Pioneer Public Health Nurse—Public health nursing is such a comparatively new profession that it has not many outstanding older nurses among its ranks. One of them was the late Anna McGee of Schenectady, N. Y., who at the time of her death on October 28 was Director of the Schenectady County Public Health Nursing Association.

Dr. Julius Tandler, Health Commissioner of Vienna, Austria, who gave an address at the International Congress of Nurses in Montreal this summer, remarked that if he had his life to live over again he would like to be an Amer-

* Please send printed matter or other material relating to public health nursing to Eva F. MacDougall, 126 State House Annex, Indianapolis, Ind.

ican public health nurse because of the romance and human interest of her work. This is well borne out in the life of Miss McGee, which must have been full of romance and adventure.

She was doing private duty nursing when she made the acquaintance of Theodore Roosevelt, who was organizing his regiment for the Spanish-American War. She volunteered her services, and was the first woman to enlist for foreign service. Later, President McKinley put her in charge of the American hospital in the Philippines. She was assigned to duty under Admiral Dewey and was on his flagship, the Olympic, when the vessel steamed into the harbor of Manila.

She was transferred to Cuba where she did duty on the battlefield at San Juan Hill.

Soon after she returned to the United States she was assigned for duty with the Ninth Infantry, which was ordered to China to quell the Boxer uprising.

Returning to the United States she joined with Lillian Wald, the founder of the Henry Street Settlement Nursing Service in New York City.

During the World War her services were very valuable in the recruiting of nursing forces for service in this country and in France.

She was always an ardent Red Cross worker in her local chapter. She was an active worker in the Schenectady Federation of Women's Clubs, and was chairman of the public health nursing committee of the New York State Federation of Women's Clubs.

Miss McGee was a charter member of the National Organization for Public Health Nursing, and was affiliated with the Public Health Nursing Section of the A. P. H. A.

She Is a Teacher-Nurse—It seems difficult for a great many people to understand the work of the public health nurse unless they have had some vital contact with it or been very closely associated with it over a period of time. Some feel that public health nurses are not graduate nurses because they wear blue or gray instead of white uniforms. One college student whose instructor took his class to visit the office of the local public health nursing association, exclaimed afterwards to the instructor, "I'm so glad you took us down there. I have often seen those nurses on the street, but I always thought they were nuns."

In the November, 1929, issue of *The Survey*, Dorothy Deming describes the work of a public health nurse in a way that entertains while it informs.

In answer to the query, "What's public and what's healthy about a public health nurse?" from a young friend just recuperating from a tonsillectomy, who had for the first time that morning received the ministrations of a public health nurse in her home, the friend who had stepped in for an afternoon call and who had recommended a visiting nurse answered:

> The public health nurse is a teacher and nurse, with a nicely balanced ability to do one or the other as the situation demands. If Mrs. Hardemup has broken her ankle and needs the skilled care of a graduate nurse only once a day, she calls for the nurse and scarcely gets a glimpse of the teacher. On the other hand, if Mrs. Poormother doesn't know how to launder her new baby, the teacher section of the nurse appears, and she gets a lesson in baby bathing. Most of the time the public health nurse isn't conscious herself which ability she is using, nor is her patient. It's just one big inseparable job.

In answer to the girl's complaint that her nurse that morning had not taught her a thing, the visitor explained:

> She taught you how to read your clinical thermometer. . . . She fixed your light for night reading in a way you have never thought of. She wrapped your icebag so it wouldn't drip on your pillow, left a list of foods you can eat, wrote out that recipe for milk whip, explained why your ears hurt, and you never knew she taught you a thing.

The girl was beginning to get an

inkling of how the nurse did her teaching, but the visitor went on:

Now picture that same nurse in the home of a poor tenement family. The mother knows about six words of English. Two of the eight children have influenza. The father coughs constantly and is out of work. There are no medical supplies in the house, not even a quarter for the gas meter—does she have to know how to teach? Add to her home visiting, assistance at clinics, conferences, mothers' clubs, school nursing, nursing in industries, a few talents on the side, such as poster making, public speaking, committee management, automobile hygiene—and you have a nursing job *plus*.—

Dorothy Deming, Nursing by Leg Power, *Survey*, Nov., 1929, p. 205.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN*

The Strange Case of Mr. Smith—The reactions of "one who should know" are reported by B. K. Richardson, Illinois Department of Public Health:

Apropos of the diagnosis of the Strange Case of Mr. Smith at the Minneapolis Publicity Clinic. I placed a copy of this little booklet in the hands of my 8 year old boy. He read it through with apparent interest. His comment when he had finished it was "A bath would help, wouldn't it?" Then he wanted to know what the Joneses thought of getting Smith's cold.

Will You Help East Orange?—And what do you do with the public waiting room?

In the new Health Building recently occupied by the East Orange Health Department, we have provided what is known as a public information room. Here, most persons visiting the department will stop for directions or will wait while the information they wish is being secured. In other words, it will be a public waiting room, and it is our purpose to make it work and to be instructive as well.

Among other things we have a universal display standard with 30" x 40" panels for posters, charts, maps and other educational material. I would greatly appreciate suggestions from you as to just what to use and how to obtain it. It occurred to me that some readers might help us to dress up these panels with practical public health educational material.—F. J. Osborne, Health Officer, East Orange, N. J.

January 22, 1930—This is the date when Chairman John Sundwall will meet the Public Health Education Section Council in New York. The docket will include the Fort Worth program and other Section interests.

Recognition of Good Work Done—Why should not health publicity claim one or more of the Harmon awards for the best records of a year's publicity? Making up the record should be good fun! And probably we will agree that such a record should be made anyway. Why not make up a duplicate set—for staff and board and publicity committee to study? Then permit the exhibition of one set at Fort Worth next October. The Harmon Foundation, 140 Nassau St., New York, will send you details.

What Might Have Happened!—

I almost had a heart attack when I failed to find your department in the August issue *A. J. P. H.* So when this month's issue arrived I looked for it first thing and heaved a sigh of relief.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

Please let me criticise now that I've thrown my bouquet. You have two and one-half pages of material in that issue. Why leave the precious half-page blank?—B. P. R.

Answer: Sometimes because the next month comes too soon; sometimes because the editor at 370 cannot easily fit the copy into the space. But it was good to learn that one man noted the omission of this department.

Make Friends with Your Public—Says J. Mace Andress, Ph.D., in December, 1929, *Hygeia*, under "Health and the School":

A health program cannot hope to succeed unless it is looked upon in a friendly way by the rank and file of teachers. . . . A health program cannot hope to succeed unless it is regarded favorably by the general public. . . . There are also the parents. Their support is indispensable in the carrying on of the health program.

Then follow suggestions on relations with community leaders, parents and newspapers:

One of the striking measures in the child health demonstration at Fargo was the care with which the general public was informed as to the prospective health program and the spirit of civic coöperation that was aroused. From that point of view alone the report of the demonstration is worth reading with care.

Who Is Right? Who Says So?—Taking pity upon the public, *Hygeia* (Dec., 1929) says:

If a distinguished scientist even suspects that he has found, for example, a cure for cancer, that is big news. It gets a lot of space and a good headline. Perhaps the professor was unwise in letting his suspicions reach the press, but we cannot censure the press for making a big story of it. It is the biggest story waiting to be told in the realm of modern medicine. A few months later, the scientist finds that he has not come to a correct conclusion. This is not such big news, and though duly reported, it is often overlooked by the reader. We may perhaps wish that the truth might catch up with the error, but that is seldom the case in any field of human relationship.

Moreover, the real newspaper in its news columns is telling you what happened, not what it thinks about the event. If the professor says so and so, the paper reports it. When speeches are made at conventions or other gatherings, the press reports them if they are interesting or the man who makes them is important. It does not distinguish between sources; it may report in the same issue the statements, often widely at variance, of physicians, leaders of faith-healing movements, anti-vivisectionists and representatives of this or that cult that claims to deal with health. It is all news; you must do the sifting. The question to ask yourself is—Who says so? . . ."

Then Dr. W. W. Bauer, in "Who Says So—Health Educators or Health Racketeers?" describes the sources of reliable health information. Good material for further use. A second chapter in the January, 1930, issue.

Who Uses Them?—Bookmarks, bookplates, book covers—in schools or elsewhere? Do you issue your own, or do you purchase them ready-made, or secure them free from an advertiser of a health product? Replies will be passed on, and samples will be displayed at Boston and Fort Worth.

The Alabama Movable School—It consists of a large covered motor truck, operating out of Tuskegee Institute and carrying a crew of from four to six people, among whom are a federal farm demonstrator, two public health nurses, a home economics worker and the chauffeur. Possibly one or two others are also taken along for certain localities. All of the crew are colored. The county health officer or the county farm demonstrator or home bureau agent is notified in advance about the coming of the School. The truck drives up at a certain time in front of a farm which has been set aside for the purpose. Usually from 150 to 175 Negroes from the neighborhood are present. The male members of the School take the men out on the farm and go over it,

showing them how to prune trees, plant cotton, grow better stock, etc. The women from the School take the wives of the farmers and teach them how to cook, how to sew and how to make their homes look better. From the public health angle they teach them how to keep themselves and their families healthy. For example, they teach them how to take care of the baby, how to cook the food and how to take care of tuberculosis patients or others that are sick, etc., etc.

During the course of the demonstration the whole house and yard are cleaned up, whitewashed and a complete transformation is made during the day. The next day the School moves on to another locality and repeats its demonstration. In this way the people are taught health and farm economics right on the ground. On Sundays the School puts up at some place where there is a church and usually the service is given over to health. As many as 700 people are reached in this way on a single Sunday.

The School carries material for graphically demonstrating the points they wish to make and everything is presented in a manner that will be effective and will reach the Negro farmer to whom they appeal.

The enterprise is supported jointly by the Tuskegee Institute, Alabama State Department of Health, U. S. Bureau of Agriculture and the Alabama Tuberculosis Association.—Philip P. Jacobs.

The School will be demonstrated at the National Tuberculosis Association convention at Memphis in May, 1930.

DIPHTHERIA

The Search for the Unprotected Child in Chautauqua County (without name of agency or city address). Two pages of "Some Endorsements from Chautauqua County People."

Small 4-page folder—Knock Out Diphtheria. Cover page: photograph, white on black, with black on white silhouette—different, effective. Inside: white on black photograph, with conversational text. Racine Health Department. Better send 2 cents for copy.

Philadelphia's 1929 diphtheria campaign described in *Monthly Bulletin*, Department of Public Health, Philadelphia, Pa. Among the publicity features were a series of six announcements, each about 100 words in length, given by several radio stations during the 10 days of the campaign; free advertising space in several dailies; 1,000 large red and blue posters distributed by a motion picture company; free advertisements in motion picture programs for a week.

READING REFERENCES

Eighty-five references to books, chapters and articles are given in *Supplement to Publicity Methods Reading List*, under such headings as: The Public and Public Opinion, Copy, Exhibits, Financial Campaigns, House Organs, Lists, Mail, Meetings, Motion Pictures, Newspapers, Plays and Pageants, Posters, Printing, Public Speaking—and publicity in special fields, including Public Health.

The 1924 edition includes 48 pages of references listed under 29 headings. Both for 30 cents. *Copy of the Supplement free upon request by all who already have copies of the 1924 edition.* Russell Sage Foundation, 130 E. 22d St., New York, N. Y.

WORDS—"HUMANIZED"

The *London Mercury*, speaking of the new *Encyclopedia Britannica*, which had to be "humanized" to meet the requirements of the large mass distribution in the United States:

> . . . and "humanized" in a very large proportion of the work—and that not the least scholarly—has simply meant plain English, and a merciful brevity, and a few explanatory words now and then to help the ordinary reader over some style.

SLOGANS AND PHRASES

"Knock out diphtheria"—Racine Board of Health.

"Protect them from tuberculosis" (with child picture)—Early Diagnosis Campaign, 1930.

"Spare the sweets and save the teeth"—Extension Division, University of Iowa.

HONORABLE MENTION

To Department of Health, Morristown, N. J., for table of contents in annual report.

To *Missouri Public Health News*, State Board of Health, Jefferson City, Mo., for table of contents.

To Board of Health, East Orange, N. J., for table of contents in annual report.

To Marion County Tuberculosis Association, Indianapolis, Ind., for title of annual report—"Progress in Public Health in Indianapolis and Marion County."

To Public Welfare Commissioner, Philippine Islands: for table of contents in annual report (plus heavy demerit for mailing report rolled).

To American National Red Cross: for a good table of contents in annual report.

To *Public Health News*, New Jersey Department of Health: for an index for the year.

RADIO

Tell us of your radio dates ahead, with or without the specific topics?

Station WEEI will broadcast for the Massachusetts Society for Mental Hygiene on alternate Mondays at 2:30 p.m., eastern time: Dec. 2, 16, 30, Jan. 13, 27, Feb. 10, 24.

Probably the A. M. A. will continue broadcasting at 11:15 and 8:00 p.m., central time; Station WBBM (770 kilocycles—389.4 meters).

From the code of ethics adopted by the National Association of Broadcasters:

> This radio station agrees that patent medicines or products of any kind, the use of which without the advice of a physician may prove dangerous to the health or physical condition of a user, shall be permitted time on the air only when competent medical authorities have approved them.

Caring for the Health of 6,000,000 People, by Homer Folks, over WEAF, October 30. *Free* from Health Department, New York, N. Y. A good showing of what a health officer or health department must do. Can be adapted to other cities.

Passing Things Around (colds are communicable), radio talk broadcast by Onondaga Health Association, 327 Montgomery St., Syracuse, N. Y. A good example of a "good" radio talk. *Free* for 2 cents.

DATES AHEAD

The April, 1930, Early Diagnosis Campaign will emphasize "the importance of watching and guarding the child." Inaugurated by the tuberculosis associations, this campaign offers an opportunity for many types of health agencies to participate. Address any local or state tuberculosis association, or the National Tuberculosis Association, 370 Seventh Ave., New York, N. Y.

WORDS

We say "physician" to distinguish between the cult doctors and the physicians. Too often with ignorant people our saying "doctor" means any old kind of a doctor, herb-doctor, advertising quack, or what not. The rest of your cracks on words I agree with.

This, from Bernard P. Roloff, director of health education, Chicago Department of Health, sounds reasonable.

BOOKS AND REPORTS

Laboratory Methods of the United States Army—*Manual of Laboratory Methods (3d ed. rev.), Medical War Manual No. 6—Edited by Charles F. Craig, M.D. Philadelphia: Lea and Febiger,* 1929. 696 pp. Price, $3.50.

This excellent manual appears under a new name, and is practically a new book. It covers an enormous amount of ground, and in all shows a high degree of excellence. There are some omissions, as Kinyoun's modification of Ponder's stain for diphtheria. We cannot but consider it unfortunate that the method of the Wassermann test given is so different from that in general use. In the reporting, (++) represents the highest mark given, indicating complete inhibition of hemolysis. This conforms to the recommendations of the second laboratory conference held in Copenhagen in 1928. An antihuman hemolytic system which requires an excessive amount of complement is used, while the measure of amboceptor necessitates cutting pieces of paper of exactly the same size. Incubation is at 37° C. rather than at icebox temperature. The higher temperature is apt to injure complement and gives more opportunity for nonspecific reactions, in addition to which the lower has been found to give stronger reactions with syphilitic bloods. While (++) is the highest mark for the Wassermann, 4+ is used for the Kahn method.

The author, page 186, recognizes that the method adopted by him is less sensitive than that in general use in civil laboratories.

When committees both in Europe and in this country are trying to standardize this test, and to approach a certain degree of uniformity, it seems unfortunate that a much used and official book should add to the existing confusion. There is no mention of the fact that this is not in accordance with widespread practice.

With a few exceptions, nothing but praise can be given to this manual, both as regards its substance and its make-up.

M. P. RAVENEL

The Chemical Aspects of Immunity—*By H. Gideon Wells, Ph.D., M.D. (2d ed.) New York: Chemical Catalogue Co.,* 1929. 286 pp. Price, $6.00.

This second edition of an American Chemical Society monograph has been enlarged to include the contributions to immunological knowledge of the past 5 years by the incorporation of new material into the various chapters without increasing their number. As with the previous edition, the underlying idea has been to bring together in the most concise manner possible the best of the facts and theories of immunity for the use of both chemists and immunologists.

This edition will undoubtedly be as widely used as the first, which was translated and published in French and German.

ROY W. PRYER

The Road to Health—*By C.-E. A. Winslow, Dr.P.H. New York: Macmillan,* 1929. 155 pp. Price, $2.00.

This is a book written by one who is no propagandist, and who is more than a technician, having the ability to present to us the philosophy of the health movement so that we may see the whole field clearly with him. It covers, in three chapters, the story of the conquest of disease, the dominant phases of the present-day program, and the perplexing problems of the new public hygiene, es-

pecially physician-patient-health agency relationships.

The book is made up of a series of three lectures given presumably to a well educated lay audience. The presentation is convincing, the style pleasing, and it cannot fail to interest and deiight readers of the same type as the audience to whom the lectures were addressed.

It is to be regretted that the publishers did not make the book more attractive with illustrations. Reproductions of pictures showing the sanitary measures of older days stimulate interest when contrasted with present-day practice. Simple graphs would have made the few comparative statistics used more comprehensible.

Evidences of lack of editing creep in —for instance, " half the states of the Union (including Pennsylvania) . . ." suggests that this state is inhabited by strange creatures who would not be expected to conform to rational practices. Statements such as " perhaps few of us even in this room " encumber the text.

However, these minor faults mean but little, for the philosophy is so sound, the presentation so convincing, the style so delightful that the book will influence profoundly all those who have better than " tabloid " minds.

R. S. PATTERSON

A System of Bacteriology in Relation to Medicine (Vol. III)—*By W. Bulloch, P. Fildes, A. T. Glenny, H. Henry, R. T. Hewlett, R. A. O'Brien, S. G. Paine, G. F. Petrie, Muriel Robertson, R. St.John-Brooks, W. G. Savage, A. C. Thaysen, H. G. Thornton, and R. L. Vollum. London: His Majesty's Stationery Office,* 1929. 413 pp. Price, $6.00.

The announcement made some months ago that the Medical Research Council of England would sponsor the publication of *A System of Bacteriology in Relation to Medicine* in 9 volumes was hailed by all bacteriologists, especially those in English speaking countries, with great satisfaction. Since the creation of the Council, it has been responsible for many notable studies. Certainly no one group has contributed more to bacteriology and many phases of medicine than the Council.

While we have many excellent books on bacteriology in its various relations to human and animal medicine, to agriculture, and to various commercial arts, there is now no system at all comparable to what the Council has projected. We understand that it is to be carried out by some 100 British bacteriologists under the general editorship of Dr. Paul Fildes and Professor J. C. G. Ledingham, who are acting on behalf of the Bacteriological Committee, of which they are members; but which contains in addition the names of other well-known men, so that we are assured of an authentic exposition of the science as well as expert presentation.

The first volume published is No. III. It opens with a chapter on The Economic Aspects of Bacteriology, followed by 11 others, which treat of the bacteriology of water, dairy industry, foods, food poisoning, soil, insects and plants. The diseases treated are bubonic plague, gas gangrene, and tetanus. Each chapter is followed by a well selected bibliography. The presentation, as well as the editing, has been exceptionally well done. The educated Englishman knows his language.

It surprises one to find only 11 pages given to the bacteriology of water, and 23 to the dairy industry, though it must be confessed that it is a relief to have known facts presented succinctly, without the long discussions sometimes found, and which generally result only in confusion. The bibliographies before mentioned point the way to fuller discussion if deemed necessary.

A striking feature of the book is the paucity of illustrations. Only Chapter

V on Soil Bacteria is illustrated. While a book can be overloaded with charts and figures, they are of great assistance in the understanding of certain subjects. One wishes particularly for illustrations of insects and of the organisms associated with gas gangrene.

The Table of Contents is full, and must serve as an index until Volume IX is published, which will contain a general index of the series.

We cannot but feel that the Medical Research Council has put all bacteriologists under a further debt of gratitude, and we congratulate the editors as well as the individual authors upon their excellent work. M. P. RAVENEL

Some Methods for the Prevention of Tuberculosis—*By W. Bolton Tomson, M.D. New York: William Wood,* 1929. 148 pp. Price, $2.50.

Methods for the control of tuberculosis may be grouped into (a) devices for preventing massive infection and (b) attempts to inhibit the development of disease after infection has taken place. Dr. Tomson has collected in one volume several of the tested measures employed in European countries and in the United States.

The Grancher system, practiced mostly in France and Belgium, is based on the observation that children of tuberculous parents are in grave danger of becoming massively infected and later diseased, and advocates the separation of children from their parents until they have acquired a reasonable amount of immunity. The Grancher principle is applied most drastically by the Placement Familial des Tout-Petits, which arranges for the complete separation of the new-born infant from its mother. The child is cared for at a maternity clinic for about 3 years, after which it is boarded out in a peasant family free from tuberculosis. Of 434 children so cared for in 1927, only 1 died of tuberculosis.

In Switzerland, children are not boarded out in families but are placed in preventoriums. Norway and Sweden have developed well rounded programs for the prevention of tuberculosis, in which nursing homes for tuberculous children, open air schools, and improvement of housing conditions, play important parts. In England, prominence is given to the view that infection may be prevented from developing into serious disease by raising the bodily resistance and by diminishing the strength or sizes of the infecting doses. Tuberculosis Village Settlements, such as Papworth at Cambridgeshire and Preston Hall at Aylesford, have demonstrated, according to Dr. Tomson, the feasibility of colonizing tuberculous adults and their families.

The description of some of the measures in vogue in the United States leaves much to be desired both in accuracy of presentation and point of emphasis on the methods selected for discussion.

Dr. Tomson strongly advocates the adoption of the Grancher system for his own country, England, but realizes that public sentiment is strongly opposed to the radical separation of children from parents. American health workers will do well to give careful consideration to the technics described, even though they may not seem suitable to our conditions.

H. E. KLEINSCHMIDT

Laws Concerning Birth Control in the United States—*New York: Committee on Federal Legislation for Birth Control,* 1929. 39 pp. Price, $.25.

According to this pamphlet, presenting a survey of federal and state legislation on birth control, 31 states now have laws permitting physicians to give information on the prevention of conception, while 11 others permit the giving but not the publishing of the information, and 2 states allow it for the cure and prevention of disease. Four states

are said to be doubtful, and I prohibits the information. Following a preface by Margaret Sanger, in which birth control is characterized as a beneficent social force, the various state laws are tabulated, and briefly discussed. The pamphlet will be of interest to those who are either for or against this so-called social force. JAMES A. TOBEY

Meat through the Microscope. *Applications of Chemistry and the Biological Sciences to Some Problems of the Meat Packing Industry—By C. Robert Moulton, Ph.D. Chicago: University of Chicago Press,* 1929. Price, $5.00.

This book is one of the Institute of Meat Packing Studies, and is the outcome of a series of lectures given by the author in the school year 1923–1924, though it contains much new material, and may be regarded as a new work.

The name is misleading, as it considers the problems of chemistry, bacteriology, and other biological sciences as related to the meat packing industry. As a textbook for those going into this business, it possesses great value. Health officers should also have knowledge of much of the material presented.

The treatment of meat curing and meat spoilage, which occupies more than one-third of the book, will be of value to many readers, though it is too technical for the general public. The chapter on "Pharmaceuticals and Glands" is of particular interest, showing how large a part the stockyards of today play in the provision of these comparatively new products, much used, and much abused, in rational medicine as well as quackery.

The book is well and interestingly written, and a fair division of space is given to the subjects considered. The last chapter, "Health Problems," while it contains useful information, is not complete enough to be of much value. One cannot help wondering why undulant fever, septic sore throat, ergotism, milk sickness, potato poisoning and fish poisoning should be treated in a book devoted practically entirely to packing house problems, and in the same chapter 11 pages are devoted to the cattle grub, which, while it interferes with the proper growing of cattle, seems to be of interest to the author chiefly because it injures the hides.

The book is excellently printed and bound, and very free from mistakes.

M. P. RAVENEL

Behavior of the Young Child—*By Ethel B. Waring and Marguerite Wilker. New York: Scribner,* 1929. 121 pp. Price, $1.00.

In the book, *Behavior of the Young Child,* by Ethel B. Waring and Marguerite Wilker, the two important subjects of sleeping and feeding with relation to young children are considered in terms of practical experiences related and interpreted. The behavior of children in relation to both of these subjects is considerably varied and important.

Many mothers who think they have peculiarly unique problems will probably gain a great deal of information and assurance through seeing in new relationships their own problems. It is extremely important for the adult to understand the underlying reason which exists in the mind of the young child and which determines his behavior.

We cannot always be sure that the behavior approved by adults is necessarily best for the young child. Sometimes very serious defects occur in the child's behavior because of the disapproval expressed by adults who do not fully appreciate the fact that each age group has its own behavior code which often meets the approval only of its own age group. Many a child is today not eating or sleeping because of insistence upon his sleeping or eating in a way which meets only adult approval. This

is a point, I think, brought out in the examples cited in the book.

Adults whose experience has been very limited in the care of young children should benefit greatly by seeing the variety of responses that can occur in a single situation. The distinction is clearly made between what we really do teach the child and what we wish to teach the child. The book is helpful and instructive. LEROY A. WILKES

Rickets Including Osteomalacia and Tetany—*By Alfred F. Hess, M.D. Philadelphia: Lea and Febiger,* 1929. 485 pp. Price, $5.50.

Few subjects have held the interest of the scientist and medical man during the last ten years more closely, and few have brought more surprises in their solution, than rickets. The author was led to his study of the disease incidentally during the investigation of infantile scurvy, but for the past 12 years has given his attention both in the clinic and laboratory to its investigation.

Though rickets was satisfactorily described by Soranus of Ephesus, who lived in the early part of the Christian Era, the author divides our concept of the disease into two periods—1650 to 1918, and the second, which he calls that of the "Newer Rickets," from 1918 to the present. The date 1650 was presumably selected because in that year the work of Glisson which "will always remain one of the glories of English medicine" appeared.

Rickets is regarded as essentially a climatic disorder. Its distribution throughout the world is inversely proportioned to the amount of sunshine. "In general, a map of the incidence of rickets is the practical equivalent of a map of deficiency of sunlight." This justifies the statement that had physicians during the World War known of the specific value of sunlight or of ultraviolet rays, the so-called "war osteomalacia" would not have flourished.

The study of the disease has also brought about other remarkable discoveries, such as the activation of cholesterol, and the further discovery that ergosterol was really the substance concerned. The remarkable effects of the ultra-violet light have also been demonstrated to such an extent that "Rickets has become the established criterion for appraising the biological action of ultraviolet waves in the region of 300 millimicrons."

The author has produced what we consider a complete book in spite of his apologies for some omissions. There are few questions which remain unanswered. From the standpoint of our readers, the prevention of rickets with its resulting deformities will prove the most interesting feature, but this has, of course, depended upon the experimental and practical studies described. A clear understanding of all the factors involved is especially important on account of the commercial exploitation of irradiated foods and irradiation in general.

Osteomalacia and infantile tetany are also capably considered. We cannot but consider this a book of unusual importance, both as regards subject matter and treatment. It will for a long time hold its place as a standard.

There are few illustrations, but there is a well selected bibliography. The printing and make-up are of high quality. M. P. RAVENEL

Federal Limitations upon Municipal Ordinance Making Power—*By Harvey Walker. Columbus: Ohio State University Press,* 1929. 207 pp. Price, $3.00.

Among the many technical requirements of ordinance making is the essential one that the ordinance must conform to all provisions of the Federal Constitution. The several limitations imposed by our supreme law, and the interpretation and application of them

as revealed in the numerous decisions of the Supreme Court of the United States have been compiled, documented, and studiously set forth in this well printed book. It does not contain much specifically on the subject of public health, though half a dozen pages are devoted to a discussion of local health powers in relation to the Fourteenth Amendment to the Constitution. Lawyers, legislative drafting experts, and others concerned with the legal technic of ordinance making will find this book of value for reference and study.

JAMES A. TOBEY

Water Supply Engineering—*By Harold E. Babbitt and James J. Doland. New York: McGraw-Hill,* 1929. 776 pp. Price, $6.00.

This up-to-date textbook has been prepared in such a way as to combine both fundamentals and practical procedure. The limitations of space and cost have, of course, prevented exhaustive treatment of each subject, but sufficient is given to fulfil the purpose of the volume. It is believed that the readers will be struck particularly with the logical arrangement of the subject matter.

After a brief introductory chapter and one on finances, there follow two good ones on hydraulics and rainfall and runoff. As these two subjects are important ones to the student, they are given more space than some other subjects. Dams, impounding reservoirs, intakes and aqueducts are given 71 pages, while steam and electrical power, together with pumping machinery, receive 113 pages or a little more than one-seventh of the book. Because of the extensive use of electricity as power, the chapter on the utilization of that power is appropriate.

The next group of chapters covers materials, pipes, and the design and maintenance of distribution systems and reservoirs. This leads into a series of chapters covering 224 pages on sanitation, and water quality and its purification.

The book has a good table of contents and is well indexed.

ARTHUR P. MILLER

The Doctor in Court—*By Edward Huntington Williams, M.D. Baltimore: Williams & Wilkins,* 1929. 289 pp. Price, $3.00.

This is not a law book, but a story book. It is full of absorbing anecdotes from the experiences of a doctor who has frequently been in court during the past 40 years. The author belongs to the phratry of alienists, and admits it. As a consequence, most of his narratives are concerned with legal processes affecting the insane, particularly on the west coast. His discussions of the many incidents in his own career as a medical witness, and the appearances of other clever alienists before equally dextrous attorneys, are tinctured with numerous ironical comments on the technicality, trickery, and quibbling with which the layman thinks our legal system is infested. Not so much is said about some of the patent imperfections, defects, and inconsistencies of medical science and its representatives, especially when on the witness stand.

Be that as it may, this is a particularly interesting book for any kind of a reader. The pleasure of perusing it, which is considerable, would be enhanced if the publishers had not made the reader cut so many of the pages. The print, paper, and make-up are all excellent, though judging from what is an unusual number of typographical errors for this publishing firm, the author is a better alienist than proofreader. Every physician and every sanitarian who ever has appeared in court, or expects to, and that includes nearly all of them, will find this volume both valuable and interesting. So will the general reader.

JAMES A. TOBEY

Biological Stains—A Handbook on the Nature and Uses of the Dyes Employed in the Biological Laboratory. *(2d ed. rev.) H. J. Conn, Chairman. Geneva, N. Y.: Commission on Standardization of Biological Stains,* 1929. 224 pp. Price, $2.50.

In the preface it is stated:

> . . . in the four years since the first edition of this book was published so much has been added to our knowledge of stains and staining that a large portion of what was then written is now out of date. As a result it has been almost necessary to rewrite the book in revising it. At the same time a good deal of new material has been added.

The improvement, which is significant, lies in the new material. A fairly close comparison with the first edition shows no essential changes from, or deletions of, any part of the contents of that edition despite the claim that a large portion is now out of date. Fortunately the book is better than the preface indicates in this respect, inasmuch as the essential features are still not out of date.

A section on acridine dyes has been added; those xanthene dyes which have come into prominence as indicators are more fully considered; a table of dye solubilities in water and in 95 per cent alcohol is included; and 2 pages of general laboratory information are appended which give the solubilities of certain compounds much used in microscopic work, formulas for fixing solutions and a cleaning solution. The chief addition so far as value is concerned is the including of detailed staining formulas and procedures under the various dyes as well as the general amplification of the list of dyes mentioned in detail. For many this will significantly enhance the value of the book.

To the theoretical portions of the book little if anything has been added, and little significantly altered. Very fortunately, the successful application of staining processes is not dependent on a knowledge of their mechanism. If this were not the case, there would be little help offered in those chapters which treat on mechanism—either general or of the formation or action of compound dyes. One feels that a more definite knowledge of the types of valence bonds recognized by chemists would have been of aid. Though the confusion of the reaction of a solution with " basicity " or " acidity " of a compound is less evident here than in much biological writing, a trace of it remains. A certain limitedness of physical and chemical outlook is evinced throughout these particular chapters, an instance of which is the naïve statement (p. 161) indicating that the phenomenon of adsorption is the property " possessed by a solid body " rather than one characteristic of any type of interphase, even though the latter definition would aid the argument unless one assumes stained tissue as almost invariably solid.

The book is valuable as a compend of practical information, but the theoretical chapters should be read with an open mind, even if with interest.

The pointing out of these weaknesses does not detract from the general value of the book, and we feel that all of those interested in stains and staining owe a debt of gratitude to the Commission, and especially to its chairman.

A. E. STEARN

A Manual of External Parasites— *By Henry Ellsworth Ewing, United States Bureau of Entomology. Springfield, Ill.: Charles C. Thomas,* 1929. 225 pp. Price, $4.50.

The five major groups of external parasites, the mites, ticks, biting lice, sucking lice and fleas, are treated in a technical yet readable manner. The manual gives a very good background for the study of these different groups. Original keys to the known genera of the world are given in most instances. These together with other essential

taxonomic matter and the consideration of external anatomy, life histories, natural relationship and economy make the book a valuable guide and reference for students of these groups. While it is intended more particularly for biological students, the manual will serve as a valuable reference for the general practitioner and the specialist in skin diseases and external parasites. Those interested in the veterinary sciences will also find it very valuable to them in their work.

The average layman will be particularly interested in the discussions and recommendations on the control and prevention of annoyance from the common chiggers. The chapter on parasitic mites has been handled in a masterful manner. Stockmen and poultrymen will be especially interested in the chapters on ticks and the biting and sucking lice. These three groups have been handled in a very satisfactory manner. The chapter on fleas will interest all who have ever had contact with this most annoying group of parasites.

The systematic arrangement of subject matter, the keys and excellent illustrations, mostly original, combine to make this brief manual a most valuable and acceptable addition to the literature on the external parasites.

L. HASEMAN

The Bureau of Prohibition. Its History, Activities and Organization—*By Lawrence F. Schmeckebier. Washington: The Brookings Institution,* 1929. 333 pp. Price, $2.00.

Here is one really dispassionate account of the federal bureau whose activities in enforcing narcotic and liquor laws seem occasionally to cause public agitation, apprehension, and excitement. Mr. Schmeckebier has set forth in an impartial, almost blasé, manner the brief history and the extensive organization and activities of the Bureau of Prohibition. In this well printed volume, there are also included a number of valuable appendices giving compilations of laws and other useful data. There is a good index.

Physicians concerned with the intricacies of dispensing medical alcohol and narcotics will find this tranquil contribution to a turbulent subject a valuable reference work.

JAMES A. TOBEY

Report of the Second Laboratory Conference on the Serodiagnosis of Syphilis—*League of Nations, Health Organisation, Official No. C. H. 726. III. Health, 1929, III, 3. Boston: World Peace Foundation.* 186 pp. Price, $1.00.

Considering the number of methods available for the serodiagnosis of syphilis, it is no small problem to select one for use in the average laboratory. Usually the choice depends on anything but a careful comparison of those in common use. It must be with some disappointment that the laboratory director, desirous of having the best, views the report of the Conference on the Serodiagnosis of Syphilis. The Conference was held for the purpose of making a comparative study of the various methods in use. Thirty-seven workers from 19 countries applied 1 of 16 tests to the serological detection of syphilis in 944 serums. The results, together with the clinical diagnosis on the patients from whom the serums were obtained, are published in detail, but the comparison must be made by the reader himself. The Conference, if it made a comparison, found it impossible to recommend any single test, although it must have had an opinion, for it declared: " the best of these (precipitation tests) may be regarded as equal in value to the best of those which depend on fixation of complement."

Rather than present an opinion on

the matter, the Conference made a series of recommendations which, if they should be considered as the accomplishments of the session, would place it on a par with some disarmament conferences. Fortunately, one is privileged to study for himself the tables presented and draw his own conclusions. Hence, there may be a result other than the following, which are in brief the recommendations of the Conference:

1. Precipitation tests should be done only by trained serologists.
2. At least two different methods should be used.
3. The tests used should be checked by frequent conferring with the clinician.
4. A uniform method of reporting (+, ±, —) should be used.
5. On reports should be printed certain warnings for aid in interpretation of results.
6. Clinicians should study closely the diagnostic and therapeutic implications of the reports.
7. Further comparisons of this kind should be made in the future.
8. The Danish State Serum Institute should distribute serums for comparative study; itself test serums, and act as an intermediary for the exchange of information.

That these recommendations have worth, although some of them are already actively challenged, is evident, but it would almost seem that as a net contribution of such an ambitious undertaking they are disappointing.

Aside from the recommendations the report submits the entire data accumulated, including, besides results, a summary of the technical details of the methods used, and statements from several workers explaining the apparent failures of certain tests.

The reader will find difficulty in reconciling the data with the recommendations of the conference. If there is any reason for saying " the best of the precipitation tests equal to the best of the complement fixation tests," it is found in data not presented in this report, for here it is so apparent that precipitation tests were infinitely superior that American champions of complement fixation tests explain the discrepancies by complaining of the antiquated methods in use in Europe. Had Kolmer been present results would have been different, it is claimed. It is indeed unfortunate that the Kolmer methods were not included. The omission was not the fault of the Conference.

This report should certainly be in the hands of every person engaged in the serodiagnosis of syphilis. Aside from its value in tabulating results of a large number of comparative tests, it provides interesting reading for the philosopher.

N. W. LARKUM

Eat and Be Happy—*By Josiah Oldfield, M.D. New York: Appleton,* 1929. 115 pp. Price, $1.50.

As if there were not a plethora of books on how to eat, this publishing firm has acquired one by an English writer. Judging from the result there was little, if any, justification for such temerity. Not only is this particular book no better than the average, which is non too good, but it is much worse. The erudition and modernity of the author is well displayed by the archaic statement that if a man " lives over a bad-smelling drain, he will be always suffering from some complaint or other." A chapter on rheumatism is distressingly naïve, while one on vitamins omits more of them than are described.

" Every food faddist," declares the author, " should be put upon a pillar as high as that of Simeon Stylites or hanged on a gallows as high as Haman's." Excellent advice, which if followed would have meant that this book would never have been produced. It is indifferently printed and has no index. Considering its quality and quantity, or lack of both, the price asked for the book seems excessive.

JAMES A. TOBEY

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

White Plains, N. Y.—A birth rate of 23.7 per 1,000 population, with 78 per cent of the births occurring in 2 hospitals of the city, is the record of this city of 31,069 inhabitants for the year 1928. A general death rate of 11.9 and an infant mortality rate of 40 (24 for first month) are noted.

The medical service of the Department of Education supervises the health of school children at a cost of 62 cents per capita. A bedside nursing service with 8 nurses is maintained by the volunteer nursing association at a cost of 77 cents per capita. Hospitalization of indigent cases of contagious diseases, including venereal diseases and tuberculosis, is handled by the department of charities at a cost of $1.72 per capita. The health department budget amounted to $1.21 per capita. The health work of the city, scored on the basis of the second edition of the *Appraisal Form for City Health Work*, receives a rating by the health officer of 897, while the score on the third edition amounts to 783, the greatest difference occurring in the results in preschool hygiene work. The report contains excellent tables of vital statistics.

During the year there was conducted a toxin-antitoxin campaign by the health department in coöperation with the Board of Education, the Medical Society, the County Committee on Tuberculosis and Public Health, the Chamber of Commerce, the Nursing Association and the Parent-Teacher Association. Some 43 per cent of the preschool children, 83 per cent of children 5 to 9 years of age and 66 per cent of children 10 to 14 years of age received 3 immunizing doses. There was only 1 death from diphtheria of a child in White Plains during the year.

Attleboro, Mass.—One of the major health projects of the city of Attleboro is the health camp for undernourished boys, established in 1923 with the objective of developing boys mentally and socially as well as physically. In 1928 a group of 40 boys ranging in age from 7 to 14 and averaging 15.2 per cent underweight, was accommodated. The net gain during the 6 weeks of camp was 308 pounds, the maximum gain 12¾ pounds and the average gain 7¾ pounds. Posture work was an important feature of the camp program.

A noticeable decrease in the tuberculosis incidence and mortality is reported. In 1928 there were 74 cases with 24 deaths. Exclusive of non-resident cases the city had 8 cases with 6 deaths. This city of 21,330 people (estimated population) records a death rate of 12.6 per 1,000 inhabitants and an infant mortality rate, exclusive of stillbirths, of 61.5. Organic heart disease (30), pulmonary tuberculosis (23), chronic myocarditis (22) and cancer and cerebral hemorrhage (19 each), lead the list of causes of death for the year.

The health officer offers the following recommendations as a means of improving health conditions in the city: The appointment of a full-time milk and sanitary inspector, Appropriation for a properly supervised dental clinic, Isolation facilities for contagious diseases.

San Joaquin, Calif., District—A review of the operation of the San Joaquin local health district for the years 1923–1928 is highly enlightening. A local health district for administrative health purposes was formed by the county board of supervisors supported by representative citizens in 1923. This district provides for a governing Board

of Trustees who is concerned with the operation of the health department only. On this Board, each incorporated city has a duly appointed representative answering to the governing body which appoints him, namely the city council. The rural area is also represented by an appointee of the Board of Supervisors.

For the year 1927 a death rate of 12.17, an infant mortality rate of 61.7, a typhoid rate of 2.9, a diphtheria rate of 2.9, and a tuberculosis rate of 139.8 are recorded. Each of these rates is a marked reduction over the years preceding the formation of this coördinated district health program. Stockton, a city of over 50,000 people, completed 3 years without a death from diphtheria.

It is conceded that public health service does cost money—so do fire and police departments. While the latter two serve to some extent as life savers, it must be admitted they are more largely concerned with the protection of property. Property can be replaced—human life cannot. San Joaquin citizens believe in health conservation as a matter of economy as well as of humanitarianism.

National Federation of Day Nurseries—This biennial conference report is bound in attractive covers which immediately arouse interest, and cause the reader to turn the page and read the reports which prove to be most interesting.

The relation of diphtheria protection to nurseries, and the organization and functions of the nursery school are discussed at some length.

The nursery and nursery school have come to stay. Already the so-called privileged classes are clamoring for their children to have the daily opportunities, contacts, education and supervision of the nursery school, and now working mothers are glad to work harder that they may give to their little ones the same advantages.

In 1844 the first real "creche," or day nursery, was opened in Paris, supported partly by the city government and partly by private donations. Two years later the Society of Creches was formed. Within 40 years, 67 "creches" were formed in Paris, 44 in the suburbs and 223 in the departments and colonies.

Since 1907, with the founding of the National Society of Day Nurseries in England, the day nursery there has taken on new life. All its nurseries are licensed and partially supported by government or municipal aid.

In the United States, the nursery began in Troy, N. Y., in 1856, and after 73 years it is still working and has an average attendance of 100 children a day.

Jamaica—The 1928 account of public health work on the island shows progress in the control of disease. "The Colony has learned that public health is purchasable and that a full realization of the benefits to be derived from health conservation can be found only in providing and maintaining well equipped health departments."

During the year the International Division of the Rockefeller Foundation cooperated with the government of Jamaica in rural sanitation and hookworm control, health education, school hygiene and dental clinics, a school for sanitary inspectors, a malaria survey, a tuberculosis survey and dispensary, and parochial health work. During the past 10 years, marked improvement has been made in living conditions as well as in public health, and expenditures of the central and local boards of health have more than doubled.

Seeing Through Life—This is the title of the annual report for 1928 of the National Society for the Prevention of Blindness. This is an unusually attractive report, concisely written, appropriately illustrated, and well printed on good paper, easily read. All but 12 states and one territory supply free prophylactic solution either to midwives or to doctors or to both, while 30 states

carry provision on birth certificates for reporting the use of a prophylactic in the eyes of the new-born. About 4 of every 10 birth infections of the eye that become a menace to vision are not gonorrheal in origin. Another fact of importance is the knowledge that treatment of the syphilitic expectant mother in the first 3 months of pregnancy is a safe assurance of her bearing a healthy child free from syphilis or any of its ravaging effects.

The number of sight saving classes in the United States has grown from 292 in 1927 to 305 in 1928. But it is stated that 4,700 more classes are needed. Factors of importance in sight conservation are cleanliness and care, periodic eye examination, adequate medical attention, and adequate and proper lighting. Prevention of accidents in play, safeguarding of industry, preschool eye testing and good habits of eye care are among the preventive factors emphasized. The experience of 583 industrial plants employing more than 578,000 men and women during 1926 and 1927 indicates that in the 2-year period, 2,757 men and women were saved from serious injury or total blindness in both eyes, and 4,654 were saved from serious injury or total blindness in one eye.

Willesden, England—The 53d annual report for the year 1928 shows an estimated population of 176,589, a birth rate of 15.1, a general death rate of 9.78, and an infant mortality rate of 57. At the municipal clinics, expectant mothers attended medical consultations on 2,376 occasions; nursing mothers, 11,336; and children under 5 years, 27,075; a total of 40,787 attendances. Of 2,666 children born during the year, 33.6 per cent subsequently attended welfare centers. A maternal mortality rate of 3.4 per 1,000 births is noted for residents.

The following groups of school children were medically examined: (1) All children admitted to school for the first time; (2) All children between 8 and 9 years of age; and (3) All children between 12 and 13 years of age, together with children over 13 years of age who have not been examined on reaching the age of 12. There were 21,211 scholars on the public elementary school rolls, while the number of children medically inspected at routine and special inspections was 16,327.

The school nurses visited the homes of children having defects, 20,104 medical defects and 5,925 dental defects. Of those defects found to require treatment, medical or dental treatment was obtained for 14,391 and domestic treatment was obtained for 4,647. Some 88 per cent of the medical defects were treated, 63.5 per cent receiving medical treatment and 24.6 per cent, domestic treatment.

England and Wales—The annual report of the Chief Medical Officer of the Ministry of Health of England and Wales for the year 1928, like the previous reports from this source, is a highly enlightening and stimulating document.

> In a word, preventive medicine means the organization of human nurture—the cultivation and health of maternity, infancy, childhood, adolescence, adult life, old age, the postponement of mortality; and such cultivation means not only the central and local provision of medical and sanitary agencies for the fuller control of morbid processes, but the development of the body and mind of man that they may reach, in each individual, the top of their capacity. Nothing is more certain than the fact that the physical advancement and health of mankind is dependent not upon a "doctor's stunt" here or a "sanitary institution" there, but upon the whole social environment and evolution of the people.

Four basic principles must be fulfilled, it is stated, before sound foundations of a national system of preventive medicine may be laid. There must be ascertainment and accurate registration of the data obtainable. There must be

a standard of health and physiology. It is desirable to formulate an average and a norm, primarily on physiological facts. There must be an ever-growing knowledge of pathology, the nature of disease, its character and incidence, its causes and predisposing conditions, its mode of spread, the social factors which increase or reduce it, and the means of its treatment and prevention. Finally, there must be national organization.

Illinois—During 1928 the 50th anniversary of the establishment of state public health service in Illinois was celebrated. This occasion was commemorated by holding in Springfield a special program participated in by distinguished sanitarians and educators. This anniversary was also the occasion for the publication of a 2-volume history of health conditions and public health service in the state. A review of these historical documents has previously appeared in these columns of the JOURNAL.

The annual report for the fiscal year ending June 30, 1928, is abundantly illustrated with statistical charts of comparative death rates for the years 1920 and 1927. A general death rate of 11.4 in 1927 compares with a rate of 12.7 in 1920.

Under public health education it is noted that during the year, nearly 900,000 pieces of literature were distributed; 1,800 posters and 752 films were loaned, the attendance at meetings where films were shown being 336,700. A large portion of the report of 507 pages is devoted to vital statistics.

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A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

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Propaganda about Cancer Control—What the public should be told about cancer and how is discussed at length by this British consultant. Not new, but sound.

BURROWS, A. On Telling the Public about Cancer. Med. Off., 42, 18: 195 (Nov. 2), 1929.

Childhood Tuberculosis Prevention—Case finding by routine skin tests combined with X-rays when indicated are among the preventive measures discussed. Control measures are suggested but a detailed scheme is not worked out.

CASPARIS, H. Tuberculosis in Children. J. A. M. A., 93, 21: 1639 (Nov. 23), 1929.

County Sickness Survey—A morbidity survey in the most sparsely settled county of New York State results in findings comparable, in the main, to those of the preceding rural survey and provides valuable statistical material.

DEPORTE, J. V. Sickness in Essex County. New York State J. Med., 29, 21: 1311 (Nov. 1), 1929.

Scarlet Fever—A brief summary of the control measures against scarlet fever written by the Dicks.

DICK, G. F., and DICK, G. H. The Control of Scarlet Fever. Am. J. Dis. Child., 38, 5: 905 (Nov.), 1929.

Milk-Borne Scarlet Fever—A detailed account of the epidemiologic study of a milk-borne scarlet fever outbreak which indicated an udder infection in a cow contracted from a boy who milked the cow while suffering from a "sore throat." From drinking the contaminated milk, 202 cases developed.

EAKINS, W. T. A Milk-Borne Outbreak of Scarlet Fever in which Udder Infection with Scarlatinal Streptococci was Indicated. Pub. Health News (N. J.), 14, 12: 259 (Nov.), 1929.

Generalized Nursing—The economy of a generalized nursing service in a rural community is indicated in the study of the problem in Cattaraugus County (N. Y.). A very enlightening paper which should be read by health "authorities" who have violent opinions based upon little experience with this subject.

GAMBLE, L. A., and KING, F. Length of Visits in a Generalized County Nursing Service. Pub. Health Nurse, 21, 11: 567 (Nov.), 1929.

Maternal Mortality—"It is most important to make proper and adequate provision for the necessary and suitable training of those who are to practice obstetrics in the future." This is the first and greatest consideration.

HOLMES, R. W., et al. Factors and Causes of Maternal Mortality. J. A. M. A., 93, 19: 1440 (Nov. 9), 1929.

European Infant Mortality—The League of Nations compilation of infant death rates is presented graphically, and recommendations based on the international study are included.

HOLLAND, D. F. The League of Nations' Investigation of Infant Mortality. Child Health Bull., 5, 6: 167 (Nov.), 1929.

Mouth Hygiene—The necessity of teaching the direct relationship between dental disease and health is the burden of this paper. The importance of the first molars is stressed.

HYATT, T. P. Mouth Hygiene Education. Connecticut Health Bull., 43, 11: 395 (Nov.), 1929.

The Cigarette Evil—Medical opinions that, under certain conditions, smoking is detrimental to health are marshalled effectively to refute the recent opinion handed down by a disinterested doctor from North Carolina, implying that tobacco's chief harm lies in a slight local irritation to the throat. The author attempts to make a case for the dire effect of nicotine upon fetal life, a conjecture for, or against, which no real scientific evidence has been presented. One of his correspondents makes a good reply.

KNOPF, S. A. Effects of Cigarette Smoking. M. J. & Record, 130, 9: 485 (Nov. 6), 1929.

Sero-Diagnosis of Syphilis—A step-by-step examination of the serological tests of value in the diagnosis of syphilis. The Wassermann (Kolmer modification) is more sensitive and less liable to nonspecific reactions than the Kahn or other serum tests. An answer to many of the claims made for the latter tests.

KOLMER, J. A. Truths about the Serum Diagnosis of Syphilis. J. A. M. A., 93, 19: 1429 (Nov. 9), 1929.

Nutritive Value of Fat—In addition to providing an excellent source of body heat, fats regulate the rate of digestion, enable the bulk of diet to be restricted, and supply fat soluble vitamins.

MACLENNON, K., and WILLIAMS, P. N. The Nutritive Value of Fatty Foods. J. State Med., 37, 11: 654 (Nov.), 1929.

Malnutrition and Tuberculosis—A British investigation reveals many malnourished children in tuberculous households. The author believes that much can be done to prevent the spread of the disease by clinic care for malnourished contacts.

MORGAN, F. C. Malnutrition in Children in Relation to Tuberculosis. Med. Off., 42, 20: 217 (Nov. 16), 1929.

British Vaccination Procedure—The British ministry's recommendations of the "one insertion" vaccination method, the primary vaccination of infants, etc., are reported in this discussion of post-vaccinal encephalitis. This paper will furnish new material for the indefatigable news-hunters of the anti-vaccinist societies who wade through even this inoffensive column in their search for statements to distort. Health workers will find useful information in the paper.

MCKINNON, N. E., and DEFRIES, R. D. Recent Recommendations in Vaccination. Pub. Health J. (Canada), 20, 11: 552 (Nov.), 1929.

Nursing in Social Hygiene—What one nursing association plans to do (some day) as its share toward the solution of the social hygiene problem. The day may come when all health agencies will ask themselves whether they are doing their part in this neglected field of public health.

PAGAUD, M. V. Nursing Problems in a So-

cial Hygiene Program. Pub. Health Nurse, 21, 11: 571 (Nov.), 1929.

Another "Cold" Germ—To the long list of bacteria and filtrable viruses causing common colds, an intrepid bacteriologist adds another. This one is an aerobic micrococcus which, grown in pure culture, will produce the disease in subjects from whom the organism is again recovered.

PFEIFFER, J. A. F. An Undescribed Organism Isolated from Acute Rhinitis. M. J. & Record, 130, 9: 497 (Nov. 6), 1929.

More Maternal Mortality Causes—Lack of prenatal care; failure in aseptic practice; interference with normal labor; unnecessary cesarean sections; undue value on child's life; cross infection; hurried labor. These are the avoidable causes of our high puerperal mortality and morbidity, say these authors.

POLAK, J. O., and CLARK, C. Puerperal Morbidity and Mortality. J. A. M. A., 93, 19: 1436 (Nov. 9), 1929.

Los Angeles Health Administration—The story of the unique development of disease prevention and health promotion in Los Angeles County (Calif.). It would be unfair to spoil the health officer's excellent account by attempting to characterize it in this brief space. It will be read.

POMEROY, J. L. Health Center Development in Los Angeles County. J. A. M. A., 93, 20: 1547 (Nov. 17), 1929.

Diphtheria Immunity and Tonsillectomy—Of 100 Schick positive children whose tonsils were removed, 82 were Schick negative 6 months after the tonsillectomy was performed. The authors offer several possible explanations of the phenomenons observed, but wisely refrain from drawing conclusions. Many health authorities ought to be in a position to gather evidence to support or contradict the reported observations.

SCHICK, B., and TOPPER, A. Effect of Tonsillectomy and of Adenoidectomy on Diphtheria Immunity. Am. J. Dis. Child., 38, 5: 929 (Nov.), 1929.

Negro Infant Mortality—Urban infant death rates are invariably higher than rural. The latter are about the same as for whites in similar areas. The causes of infant deaths are enumerated and compared with white infant mortality.

STOUGHTON, A. L. A Study of Negro Infant Mortality. Pub. Health Rep., 44, 45: 2705 (Nov. 8), 1929.

Health Administration Abroad—How the Hamburg (Germany) health work is carried on is recounted in this intensely interesting study. The general sickness rate is low; smallpox is unknown; common communicable diseases are uncommon; general debilitating conditions are rare. Of course, we in super-progressive America have nothing to learn from the backward, old countries. But read it, anyway.

TOWNSEND, J. G. Public Health Organization and Administration in Hamburg, Germany. Pub. Health Rep., 44, 47: 2847 (Nov. 22), 1929.

Tuberculosis Vaccination—Chalk up another victory for Calmette's BCG. The author's experience leads him to urge the vaccination of all infants born to parents with open pulmonary tuberculosis.

WEBB, G. B. Immunization against Tuberculosis by Bacillus Calmette-Guerin (BCG). J. A. M. A., 93, 19: 1459 (Nov. 9), 1929.

NEWS FROM THE FIELD

STANDARD SAFETY CODE

A NATIONAL standard safety code for building exits aimed to cut down the annual loss of 15,000 lives by fire in the United States has just been approved by the American Standards Association and made available for adoption by state and municipal authorities and for use by architects, engineers and builders. The code was prepared by a technical committee of 30 representatives of safety and insurance organizations, federal government departments, state departments of labor, local fire departments, architects, engineers and others. It represents 16 years of study by this committee and its predecessors.

MAX MASON NEW ROCKEFELLER PRESIDENT

DR. Max Mason assumes the duties of President of the Rockefeller Foundation on January 1, 1930. He succeeds Dr. George E. Vincent, who has been President since May 15, 1917. Dr. Vincent resigned from this position as he has reached the age specified for retirement.

Dr. Mason was formerly connected with the University of Chicago, Massachusetts Institute of Technology, Yale University and the University of Wisconsin. He was president of the University of Chicago from 1925 to 1928.

MEXICAN BABY STAMPS

THE Republic of Mexico has issued recently many new stamps among which are the " Baby Stamps," whose object it is to contribute to the fund for the reduction of infant mortality. This fund is sponsored by the Association for the Protection of Infants.

The stamp is light blue in color, and has a picture of a woman with a baby in her arms. The caption under the picture is " Help the Infants."

HEALTH TEST FOR COOKS DECREED BY LAW IN CUBA

STRINGENT new health laws for domestic servants, cooks, nurses and all employees who handle food are to be enforced in Cuba.

The Department of Health is opening a clinic in Havana, where inoculation against typhoid and examination for tuberculosis, diseases of the skin, and blood and intestinal parasites will be carried out.

Inoculation for domestic servants will be compulsory. They will be given a certificate of good health, to be shown when seeking employment.

CLINIC FOR MENTAL AND NERVOUS DISEASES OF CHILDREN

A FREE municipal clinic for children affected with nervous and mental diseases was opened recently in Turin, Italy. This city also maintains a school for mental defectives, the pupils of which are sent for the summer to a mountain camp or to the seashore.

WARSAW HAS NEW HOSPITAL

ON November 15, 1929, the Rockefeller Foundation opened a training school for nurses in Warsaw. This will be conducted by the Polish Red Cross.

NEGRO NURSES

THE Lincoln School for Nurses of Lincoln Hospital, New York, is the largest institution in the country for the training of Negro nurses.

MEASURES FOR INCREASE OF POPULATION

AN Italian law of June 6, 1929, on measures for the increase of population contains the following item:

> In the appointment of clerical or manual workers in the Government service, whether national, provincial, or municipal, no preference shall be given to unmarried persons, and, other things being equal, married persons with children shall be preferred to those without children and married persons without children to unmarried persons.

In the assignment of apartments in houses built with Government aid, other things being equal, married persons with children are to be given preference over those without children, and married persons without children over unmarried persons.—*Rassegna della Previdenza Sociale,* Rome, July, 1929, p. 107.

MENTAL HYGIENE MEETING AT NORWICH, CONN.

HAVEN EMERSON, M.D., of Columbia University spoke on November 14, in Norwich, Conn., on "The Place of Mental Hygiene in the Public Health Nursing Program." This meeting was sponsored and arranged by the Mental Hygiene Division of the United Workers of Norwich.

MEETING OF INTERNATIONAL ASSOCIATION OF DAIRY AND MILK INSPECTORS

THE International Association of Dairy and Milk Inspectors held its eighteenth annual meeting at Memphis, Tenn., October 7–9, 1929. Resolutions were adopted relating to the death of Ivan C. Weld of Washington, D. C., who died a few weeks prior to the meeting, and three brief but eloquent memorial addresses were given. Mr. Weld was largely responsible for organization of the Association and had held the office of secretary-treasurer for 18 years. He was a member of a Commission that went to Germany to advise the government as to methods of improving the dairy industry, and at the time of his death was president of the Washington Chamber of Commerce.

The following officers were elected for the ensuing year: President, Ralph E. Irwin, State Department of Health, Harrisburg, Pa.; First Vice-President, Dr. A. R. B. Richmond, Department of Health, Toronto, Ont.; Second Vice-President, William B. Palmer, Director of the Milk Control District of "the Oranges," Orange, N. J.; Third Vice-President, Dr. Horatio N. Parker, Department of Health, Jacksonville, Fla.; Secretary-Treasurer, Dr. Paul B. Brooks, State Department of Health, Albany, N. Y.

VIRGINIA PUBLIC HEALTH ASSOCIATION

THE Virginia Public Health Association held a meeting in Charlottesville, Va., on October 21. There were 30 delegates present.

COUNTY HEALTH DEPARTMENTS FOR MICHIGAN

WITH some aid from the Rockefeller Foundation the Michigan State Department of Health is helping 10 counties to organize their own health departments. A training station at Lansing is being established to provide nurses with the training and field practice in public health work necessary to qualify them for the positions created by these new health units.

The course covers three months' training and can be given to 5 nurses at a time. Other counties are being urged to organize their health work.

DENMARK'S DELICATE CHILDREN

MORE than 1,000 delicate children were sent during a recent year by the Kingdom of Denmark to the vacation colonies which have been established for such children.

HOLYOKE, MASS.

MURRAY P. Horwood, Associate Professor of Bacteriology and Public Health at the Massachusetts Institute of Technology, has just completed a *Health Survey of Holyoke, Mass. With Relation to Tuberculosis*. The report includes a comprehensive study of the vital statistics for tuberculosis, the available facilities for diagnosing tuberculosis, the treatment of tuberculosis in hospitals and sanatoriums, the activities of the Holyoke Tuberculosis Association and other voluntary health agencies, and the organization and activities of the Holyoke Department of Health.

MOTION PICTURES FOR LEPERS

MOTION picture producers coöperating with the Leonard Wood Memorial have recently donated nearly a million feet of film for the use of leper colonies in the Philippines.

PERSONALS

PROFESSOR OWEN W. RICHARDSON of Kings College, London, was given the Nobel Prize in physics. He is a Fellow of the Royal Society of Sweden.

DR. ANNA E. RUDE, director of the Bureau of Maternal and Child Hygiene of the Los Angeles County Health Department, Calif., has been appointed to President Hoover's White House Conference on Child Health and Protection.

DR. FLORENCE R. SABIN of the Rockefeller Institute for Medical Research received the Pictorial Review medal for the woman who has made the most distinctive contribution to American life in the fields of art, science or letters.

DR. LUCIUS S. NICHOLS is the new Health Officer of Geneva County, Ala.

MRS. MARIE DOUGHTY GORGAS, widow of Major General William C. Gorgas, died suddenly in Washington on November 8.

DR. ALTON S. POPE has resigned as epidemiologist and chief of the bureau of communicable diseases of the Chicago Health Department, and has accepted a position with the Massachusetts State Health Department.

DR. FRANK J. TRACY is the new chief of the clinic for venereal diseases of the St. Louis City Health Department.

DR. RUSSELL H. KANABLE has been appointed superintendent and medical director of the Wyoming State Tuberculosis Sanatorium, Basin, Wyo.

DR. LYMAN W. CHILDS was recently elected president of the American Association of School Physicians.

C. RUFUS ROREM of the School of Business Administration of the University of Chicago has joined the staff of the Committee on the Cost of Medical Care.

I. S. FALK, formerly Professor of Bacteriology at the University of Chicago, has been appointed Associate Director of Study of the Committee on the Cost of Medical Care.

ROBERT P. FISCHELIS, formerly Secretary of the New Jersey State Board of Pharmacy, is on the staff of the Committee on the Cost of Medical Care on a part-time basis beginning January 1.

CONFERENCES

Jan. 17–18, American Social Hygiene Association, New York, N. Y.

Jan. 27–30, 12th Texas Water Works Short School, Abilene, Tex.

Jan. 27–31, Heating and Ventilating Exposition, Philadelphia, Pa.

FOREIGN

May 19–21, 1930, Second International Malaria Congress, Algiers, Algeria.

July 21–28, Royal Sanitary Institute, 41st Congress and Health Exhibition, Margate, England.

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